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OWNER-OCCUPIERS TRANSFORMATION OF PUBLIC LOW COST HOUSING IN PENINSULAR MALAYSIA

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ABSTRACT

In Peninsular Malaysia there is a stock of public sector housing for the low income group popularly known as low cost housing units which have been built over the last three decades. It is common for the owners-occupiers, through their own initiatives and efforts, to alter or to extend these houses so as to improve their housing conditions and at the same time to meet the developing needs of the households.

This research aims to identify explanations for the phenomenon of owner-initiated transformation of public sector low cost housing particularly in the urban communities of Malaysia. It seeks to further knowledge on transformation from the owners-occupiers point of view, which expresses the need to be realistic of what they can afford when carrying out the transformations. This transformation activity has been slowly recognised as a form of housing supply for low income households and their tenants.

Owner-occupiers exhibit a wide range of characteristics and motives for transforming these low cost houses. They may be grouped into two broad categories, that is, those primarily seeking to have an extra space for the household and those more concerned with the house as an economic investment. Transformation is generally carried out to at least the standard of the original dwelling. Where there is plenty of extra space available, the scale and cost of transformation is quite extensive.

There are lessons to be learnt from looking at the characteristics of the transformed housing estates. Professionals and other actors in the housing field should acknowledge that, whatever planning provisions and housing designs are laid out by the authority, public sector housing for the low income group will inevitably and continuously undergo a process of transformation with or without government financial backing in order to meet the households' developing needs. This gradual shelter improvement among the low income households in the urban communities of developing countries contributes to the improvement of housing quality and increases the existing national housing stock.

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Most of all, I am deeply indebted to the households who graciously shared their experience with me by allowing my assistants and I to interview them in their homes. Personal accounts of their motivations and methods of carrying out the transformation activities have given invaluable vitality and depth that goes beyond theories and statistics.

Finally, I would like to extend my gratitude to relatives and friends for the encouragement and personal support that they gave throughout my entire study. To all, I owe more than an ordinary debt.

Thank you

Azizah Salim

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ABBREVIATIONS AND ACRONYMS

The following abbreviations shall be used in this study and its appendices unless otherwise stated:

ANOVA	Analysis of Variance
CARDO	Centre for Architectural Research and Development Overseas
CPI	Consumer Price Index
DIY	Do-it-yourself
EPF	Employment Provident Fund
EXCO	Executive Committee
GSS	Global Shelter Strategy
HBE	Home-based Enterprise
IQR	Inter Quartile Range
MCA	Malaysian Chinese Association
MHLG	Ministry of Housing and Local Government
MP	Malaysia Plan
NHD	National Housing Department
PLCHP	Public Low Cost Housing Programme
RWI	Relative Wealth Index
SLCHP	Special Low Cost Housing Programme
SPSS	Statistical Package for Social Science
SSDC	Selangor State Development Corporation
SSE	Small-scale Enterprise
UBBL	Uniform Building By-Laws
UMNO	United Malay National Organisation
UNCHS	United Nations Centre for Human Settlements (Habitat)

CONSUMER PRICE INDEX FOR PENINSULAR MALAYSIA
(source: Social Statistic Bulletin Malaysia, 1991)

1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
66.0	69.0	72.1	75.4	78.9	82.5	86.2	90.2	94.3	98.6

1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
100	109.7	116.1	120.4	125.1	125.5	126.4	127.8	131.3	135.1

1990	1991	1992	1993	1994	1995				
139.4	145.6	152.8	157.0	164.0	168.8				

Note
MR refers to MALAYSIAN RINGGIT
£0.26 **MYR1** US0.39 (April 1995)

CHAPTER 1

CHAPTER 1

CHAPTER 1

AN INTRODUCTION TO THE STUDY

1.0 INTRODUCTION

The global struggle to provide decent basic shelter for those in need of it, particularly the low income groups, has been one of the greatest challenges to any government in modern times. Throughout the world, particularly in the Third World, countries are battling with the problem of providing shelter for the homeless, and are doing so under trying conditions ranging from the problem of continuing economic survival that is sometimes hampered by political, economic and socio-cultural conflicts to the rapid population growth coupled with uncontrolled urbanisation. According to officials, all these factors impede government to match the demand for decent, affordable housing units, with adequate and regular supply. No developing country has been spared this trauma. Only relatively wealthy city states such as Hong Kong and Singapore have done well, but the majority are still faced with considerable problems. Malaysia likewise has to combat similar problems in the provision of housing for the low income group.

One of the main areas of agreement both at Federal and State government levels in Malaysia is the view that, on their own, state agencies do not have the capacity nor the experience to undertake low cost housing projects on a scale commensurate with local housing needs. Most feel that there should be an increased role for the private sector which, to them, means the organised building contractors and housing developers. In addition, the government has imposed on the formal private sector the ruling that they have to allocate 30 per cent of their housing projects for the construction of government favoured low cost houses. It is felt that there would have been greater private sector involvement in the production for the low income group if it were not for the numerous constraints that were imposed upon them by the government itself. These constraints obviously affect the willingness of the formal private sector in Malaysia to participate in the low cost housing projects. The unfair competition from the public sector is among the most difficult challenges to deal with, i.e., low cost of land, subsidised infrastructure costs, and sale of

building materials like cement and steel at a subsidised rate. It is difficult to see how the low income group, particularly those with an annual total income of MYR9,000 and less, will benefit at all from existing government policy. With current rates of development, low cost housing is certainly not on top of the government's agenda when compared to other mega-infrastructure projects implemented in the country.

The main aim of this study is to analyse the process by which low cost houses built as complete units by the public sector in Malaysia are being transformed by the owner-occupiers through their own initiatives and efforts. This study is concerned with a significant but little known force in the present public low cost housing scene in Malaysia: the transformation of these houses by the owners-occupiers. The study itself is to investigate further the subject of one section of the report, prepared by *RMA-Perunding Bersatu Sendirian Berhad* for the Ministry of Housing and Local Government in 1993 entitled "Evaluation Study of Public Low Cost Housing Projects in Peninsular Malaysia". The section on the "Reasons for Dissatisfaction with Low Cost Housing" provoked enough interest for the researcher to undertake the study and analyse the transformation process of the low cost houses in three urban housing estates in the state of Selangor. Since the time allocated for fieldwork was only 6 months, it was decided that the survey should not be too far from the capital city of Kuala Lumpur, where the researcher is based.

Kampung Kayu Ara is one of the housing estates evaluated for the above report and the Kampung Ulu Yam is similar in character to the other housing estates surveyed by the appointed consultants. The researcher hoped that part of the findings from the study related to these estates would correlate with the dissatisfactions that had been reported in the above evaluation.

Up till now, when architects, engineers and planners were called upon by the Government to provide their professional expertise in public sector housing for the low income group, most ended up designing repetitive housing units, with some specified square metres of area per housing unit laid out in large housing estates in the country. Professional architects provide the designs, planners finalise the general layout and the contractors built the houses for the people to live in. Most of the so-called low income group remained mere recipients of the 'housing process'. When

this group became eligible for owning these housing units, they realised that they were far too small to house the average household comfortably, let alone meeting the households' developing needs over the years.

Like it or not, one simply cannot ignore the contribution of the owner-occupiers in initiating the transformation of their houses as they represent a crucial element in national housing supply, especially when looked at alongside the unimpressive performance of the public sector in the provision of low cost houses for the low income group during the last four decades. In the order of things, in a commercial marketing environment, low cost housing has always been given low priority. The question is, who is responsible for the building of low cost houses? The current debate on the desirability of the government's adopting the principles of enabling strategies, with the involvement of the private sector in the provision of more low cost houses for the low income groups particularly in the urban areas seems to be oriented almost exclusively towards the formal private sector. The role of the informal private sector and the owner-occupiers in solving the current housing problem has never been considered. With the formal private sector, the government feels that it needs to intervene so as to avoid the over-exploitative nature of the construction activities in relation to the housing supply. However, it should be recognised that the transformations initiated by the owner-occupiers can provide some means of improving the minimal housing space that had been provided by the authorities.

In Malaysia, all the house designs produced formally are governed by the Uniform Building By-Laws (UBBL) 1984 which are not necessarily based on values which will improve the quality of life of the low income group. Grimes (1976) viewed building standards as a requirement to prevent or limit the consequences of fires, floods, structural failures and other similar disasters, which is what most of the contents in the UBBL are all about.[1] However, if misconceived, building standards can contribute to depressing the housing standards of the low income group (Turner, 1976). Although housing standards may be labelled as 'minimum', they may in many cases be established without direct consideration to cost. Instead, they may be established to improve

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[1] The UBBL consists of 9 parts i.e. i) Preliminary, ii) Submission of plans for approval, iii) Space, light and ventilation, iv) Temporary works in connection with building operations, v) Structural requirements, vi) Constructional requirements, vii) Fire requirements, viii) Fire alarms, fire detection and fire fighting access, ix) Miscellaneous.

overall well-being, usually related to health and safety. During the initial stage, a certain arbitrariness has to be associated with these standards because low-level requirements have not been seriously and sufficiently tested by the approving authorities in the country. For example, lack of ventilation, daylight or drainage may be more important to health than the amount of habitable space allocated per person. In the absence of tested criteria, many developing countries, Malaysia included, turn to standards derived from developed countries, which generally have different climates as well as higher incomes and different patterns of development.

1.1 BACKGROUND TO THE STUDY

Transformations have been considered to be one of the few socially accepted solutions to the housing problems of the low income group in developing countries where moving to a larger house appears to be impossible for the low income group (Tipple, 1991). After all, it is through transformation activities that owner-occupiers are able to extend their living or habitable space at a cost they can afford and at virtually no cost to the government. Where once the neighbourhood in the public low cost housing estates appeared to be anonymously spartan and lacking in traditional aesthetic qualities, transformations are able to breakdown the spartan monotony and create variety, and to a certain extent create flexibility out of rigidity in the house designs. The low income households' efforts indicate ingenious ways of improving their minimal housing space. Despite all these efforts, the government at the Federal level does not encourage transformation of low cost housing. The government's main concern is that, by allowing them to do so, they will then degenerate the orderly characteristics of the housing estate into an unacceptable haphazard condition. They foresee problems of small rooms without sufficient natural ventilation and daylighting within each dwelling unit. Transformed houses may create stark contrasts to existing government favoured house designs and, architecturally, this may affect the favoured aesthetic qualities, if there are any.

Of late the local authorities in Malaysia recognise the phenomenon of transformation in public sector housing and seem to tolerate the activities to some extent. So far no local authority in Malaysia has ever pulled down any alterations or extension works carried out in the public sector

low cost housing estate. However, some local authorities, under the influence of the Federal government, are trying very hard to instil uniformity again, even when the household decides to extend or alter their house. This is done by issuing standard guidelines for renovation or alteration works to these houses. However people in general want to get out of uniformity.

Very few owner-occupiers are likely to remain completely satisfied with these houses for an indefinite period. At some point in time, an owner-occupier may desire some attributes in their low cost house which are not there. Most owners-occupiers appears to be unsatisfied with these low cost houses on the day they move in (fieldwork 1995). As a result, the majority of the owner-occupiers in the low cost housing estates ignore the guidelines issued by the respective local authorities (details of these guidelines for building approval are in Appendix IV). This could be regarded as another futile attempt by the authority to curtail illegal extension and alteration works. Whether transformation would improve the quality of housing enjoyed by the low income households or whether it is another 'slum' in the making, that remains to be studied.

In a culture where the extended family household system is practised, these low cost houses are far too small to provide shelter for the entire household. Therefore, it is common under these circumstances for the owner-occupiers to indulge in transformation of their housing unit in accordance to their preferences and need. Thus, we may ask, is it fair for the authorities to impose rules and regulations on the low income households to remain uniform, even in matters regarding their developing spatial need, while the upper income households have the freedom of being different?

Owner-occupation has preoccupied the formulation of housing policy frameworks in Malaysia whereas the contribution of the process of transformation towards the improvement of the housing condition of the low income household is quite significant and has never been given due consideration. Under the influence of John Turner's (1976) ideas & the school of self-help, most governments in the developing world, backed by many international development organisations, have incorporated some form of upgrading into their national urban housing policies. Similarly, the

government of Malaysia could incorporate the owner-initiated transformation as a housing improvement process among the households in the low cost housing estates.

Hence, the significance of this present study is that it is geared to an assessment of the impact of transformations on the low cost housing projects. It deals with the conditions of those low income households whose housing plight has often been overlooked in the literature of the subject. The study will show how the process of transformation takes place in this context, and will examine its consequences.

1.2 RESEARCH OBJECTIVES

The main objective of this study is to analyse the process by which houses built as complete units by the public sector in Malaysia are being transformed by the owners-occupiers through their own initiatives and efforts. Secondly, the study seeks to examine the decisions to transform by these owner-occupiers.

Having identified the common trend in the low cost housing estates we can now state the research statement as follows:

Public sector housing for the low income group in Malaysia will inevitably and continuously undergo a process of transformation carried out by the owner-occupiers, with or without government's financial backing, in order to meet the developing needs of the household.

1.3 RESEARCH QUESTIONS

The fact that so many low income households, transform the low cost housing units through their own initiatives and efforts, indicates that these houses are not meeting their developing needs and this phenomenon cannot be viewed as a simple housing improvement activity. An investigation into the phenomenon of transformation in low cost housing in developing countries must, therefore, begin with an analysis of the conditions which influences the transformation of these houses. The research questions to which answers will be sought are:-

- What triggers households to transform the dwelling units in the low cost housing estates?
- What are the ways in which transformations really improve the existing housing conditions for the occupants and society in general?

One of the central issues which this research is addressing is to analyse the criteria that were taken into account in the design and provision of public sector housing which then inevitably led to the major transformation of the houses by the owner-occupiers. On the basis of the above statement, there are six fundamental research questions that need to be addressed.

- What are the economic potentials of the transformation process among the owner-occupiers of the low cost housing units?
- What is it that determines both the course and outcome of transformation in low income housing programme, and how do they work?
- What are the implications of transformation on the government in terms of the formulation of the housing policy and the provision of housing for the low income group?
- What were the criteria considered by the professionals or housing experts in the design and provision of public sector housing for the low income group?
- What are the contributory factors that lead to the transformation of these low cost houses?

The main issue to which this study is addressed is, therefore, an assessment of the impact of transformation on the low income group in the public sector housing programme. On that basis, it is possible to state the basic research aims of the study as follows.

- To provide an empirical description and analysis of the impact of transformation on the housing estates near the city of Kuala Lumpur.
- To describe and analyse the housing situations of the transformers and non-transformers.
- To examine any effects of transformation in Ara, Sri and Yam in employment generating activities.

- To recommend some policy regarding the low cost housing.

1.4 VALUE OF THE RESEARCH OUTCOME

The dynamics of transformation need to be recognised and fully understood before the policy related to housing can be addressed effectively. When large numbers of households have transformed the houses that they are occupying, they can easily have an adverse impact on the goals and objectives of the housing policy adopted by the government. There are many valuable and useful outcomes which are hoped to result from this study.

Findings from this study can be used as follows:-

- to amend existing housing policy
- to improve current strategy on low cost housing programme
- to provide a performance assessment mechanism
- to generate theoretical arguments on the topic of housing adjustment process between the developed and developing countries
- to provide the understanding of the process of change in housing consumption among the low income group particularly among the urban communities
- to develop a model to predict the cost of transformation among the non-transformers.
- to forecast the revenue that will be generated from future property tax based on the intended transformations.

1.5 SURVEY CONTEXT & METHODOLOGY

The survey method is used as a research strategy for this study (see details in Chapter Four). The broader context of the survey chosen is in the low cost housing projects on the outskirts of Kuala Lumpur, i.e., Kampung Sungai Ara, Kampung Batu 30 Ulu Yam and Kampung Sri Serendah. For the purpose of this study, the three estates will be abbreviated to Ara, Yam and Sri. They have undergone significant changes since the early 1990's when industrial development began to concentrate within these areas. It was characterised by a steady population growth and an

inadequate supply of housing to meet the demand generated by low income people, many of whom were employed in the nearby growing industries.

Various analytical techniques were used in order to examine, categorise and combine the evidence from the data collected in a way that addresses the initial study propositions. Both quantitative and qualitative techniques were used. Whereas quantitative data were used primarily to verify propositions and analyse outcomes from transformations, qualitative observation data were mainly used to describe the different stages of transformation and the construction processes involved.

1.6 THE ORGANISATION OF THE STUDY

The study is divided into nine chapters. Chapter One is the introductory chapter which sets out the justification for the study, background to the study, research statement, objectives and research questions.

In order to provide a theoretical background to this study, Chapter Two gives a review of three theoretical approaches related to the transformation study in developing countries, namely, housing adjustment theory, filtering theory and, lastly, transformation theory. In this chapter the contradictory views on the issues and factors in association with these theories are discussed. Sources of empirical evidence with respect to transformation and the relevance of each is also presented.

Chapter Three is a review of the development of public sector low cost housing provision in the various Malaysian Development Plans. It highlights the existing policy and issues on cross subsidy, tenure, allocation process and the house designs are also presented. An overview of the Special Low Cost Housing Programme (SLCHP) is briefly depicted.

Chapter Four explains and justifies the various research methods. It indicates the research aims, and outlines the methodology and research approach that are used, elaborated and presented in the later part of the study. The chapter sets out to explain the definitional framework depicting the

research strategy to be adopted, and the reasons for the specific use of the survey cum case study method. The context of the survey is defined and both the units of analysis and variables of the survey design are defined and specified. The chapter ends by indicating the general analytical strategy and techniques that are employed in the following part of the study.

Chapter Five is the descriptions of the socio-economic characteristics of the households which serve as a background to the study on transformation. It also determines the relative wealth index of the three housing estates surveyed in relation to the variables. Chapter Six looks at the housing characteristics and house values for transformers and non-transformers while Chapter Seven looks at the detailed aspect on the cost of transformation. Chapter Eight examines the process of transformations in terms of problems encountered, the implementers, sources of finance and building permission.

Finally, the overall conclusions are presented in Chapter Nine. These draw upon the findings from the previous Chapters Six, Seven and Eight and discusses the policy implications accordingly. The reason why owner-occupiers of low cost housing units still continue to transform their houses will determine the type of solutions to the housing problems in the future. Some avenues for further empirical investigation are also recommended in this chapter.

The appendices contain the project details of the housing estates in Ara, Yam and Sri; the household survey questionnaires in English and *Bahasa Malaysia*; lists of variables for socio-economic and housing characteristics analysis; transformed floor plans by owner-occupiers; local authorities' guidelines on extensions; requirements of building development control for residential building; and modular design guide.

CHAPTER 2

CHAPTER 2

THEORETICAL REVIEW

2.0 INTRODUCTION

The phenomenon of transformation, is inherently one facet of the housing adjustment process. However, theoretical analysis of the phenomenon is conspicuously absent from the Third World literature. In reviewing the numerous literature on the housing adjustment process, it is apparent that most of the coverage is primarily concerned with studies carried out in industrialised countries like Australia and the United States. The availability of housing data, household surveys and various empirical records have enabled housing analysts, practitioners and scholars alike to make concrete statements on the pattern of housing consumption in particular parts of the world. The literature on the subject simply implies that, due to the changing needs of the households or the changing demands in the housing market, certain adjustment, mainly in terms of improving or moving, had to be made by the households concerned.

Generally speaking the housing adjustment process in industrialised countries has been brought about by factors different from those that affect the households in developing countries. However, there is a tendency in research to apply more or less identical methods and theories of the industrialised countries in analysing the housing problems in developing countries especially in terms of housing supply. Since the mid 1950s, the growth of urban population in the developing countries has been dramatic while the urbanisation process in industrialised countries has slowed down. Housing policies of all countries should aim to be realistic in terms of production and improvement of large quantities of housing units to meet the changing needs. The process of shelter production and improvement is detailed in the Global Shelter Strategy to the Year 2000 (GSS) (UNCHS 1990:31). All governments are encouraged to adopt the enabling approach, which will enable the construction and maintenance of housing, rather than direct provision by the state.

In many cases, particularly in the urban communities of developing countries, gradual shelter improvement among the low income households contributes to the improvement of the housing quality and the depletion of the existing housing stock can thus be avoided. Every dwelling unit has an economic value that appreciates considerably when it is gradually improved. The replacement of old units with new ones would add a financial burden to these households. It is imperative, therefore, for governments to get all those involved in the housing process to contribute effectively to the theme of the GSS. Furthermore, GSS recognises that housing is a positive contributor to national economic development. Thus the use of local building materials and labour-intensive methods of housing production are encouraged and this method of production has always been the practice in the gradual shelter improvement.

Since the major concern of this study is on the transformation of public sector housing in a developing country which is of different scope and in a different social context from those in the developed countries, the shortage in theoretical examination on the subject is even more acute. Apart from the neighbourhood studies conducted by Oxman and Carmon (1986) in Israel, it is not until very recently that Tipple *et al,* (1991) made the initial move to document major evidence related to resident transformation in government-built housing in developing countries, and then follow this up with his case studies in Ghana, Egypt, India, Bangladesh and Zimbabwe. Numerous terminologies has been coined to describe households that participate or do not participate in the housing adjustment process. Tipple (1991) has coined the terms transformers and non-transformers, Carmon and Oxman (1984) use the terms expanders and non-expanders, enlargers and non-enlargers, Seek (1983) applies the terms improvers and non-improvers, movers and non-movers, extenders and non-extenders.

In response to the above mentioned limitations on the literature on transformation, this theoretical reviews starts with the explanation of the following theories in relation to the housing consumption in developed countries.

- housing adjustment theory
- filtering theory
- transformation theory

The objective of this chapter, is therefore, to identify those theories relevant to the study on the provision of government built housing in developing countries in general and the issue of transformation in particular. Each one of the theories will be examined in terms of its contribution to the understanding of the process of change in the housing consumption and the outcome that results from the transformation. Particular attention will be given to their assessment of the decisions in transformation and the implications that these will have on the housing policy of the country in particular.

2.1 HOUSING ADJUSTMENT THEORY

There is a growing literature in developed countries on the way people adjust their housing consumption.[1] In his study of 'Adjusting Housing Consumption: Improve or Move', Seek (1983) was concerned with the decisions on home improvement and its implications as a housing adjustment process. The household survey, carried out in Australia in 1980, indicated that about 15 per cent of individuals moved while 62 per cent of the occupied dwellings had undergone additions and alterations which are influenced by the family life cycle. As a consequence of this finding, Seek developed a conceptual framework on the final decision to make a housing adjustment as a two stage process: the first is the decision to adjust one's housing consumption and the second is the choice between to move or to improve, or a combination of both. According to Seek, the first part is due to a mismatch between what is desired and the actual level of housing consumption, and the second relies on the costs and benefits relating to each adjustment choice. For Seek (1983) and Zeigert (1988), housing extension is defined as an aspect of house improvement and has much in common with other research on improvement expenditure (Sigsworth and Wilkinson, 1967, Needleman, 1968, 1969).

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1 The household is expected to benefit from the following bundle of services in their housing consumption (Kirwan & Martin, 1972):
a) the size of the house (floor area, number of rooms, plot size, etc);
b) the housing quality (structural conditions, quality of fittings, etc.);
c) accessibility (to employment, shopping, schools and a whole range of other activities); and
d) residential environment (both social and physical factors, i.e., type of neighbours and characteristics of the neighbourhood)

Gosling *et al,* (1991) in their study of Wokingham in the United Kingdom, rejected the claim that extension [2] is triggered by the family life cycle, such as the increase in household size or income as postulated by Wells and Gubar (1966), Duvall (1971) and by Seek (1983). Gosling *et al (1991:3),* hypothesised that:

> *'Extensions activity will follow a cycle which largely corresponds with the cycle in housing construction, which in turn reflects closely the cyclical pattern of house prices'.*

Their findings show that extension activity represent a progressive upgrading of the property to achieve higher space standards and quality. To them, house extension is part of housing development. In other words, house buyers often consider the amount of open space they expect to consume, the willingness to pay for such a facility as part of the housing package, and this varies over time as market conditions and households preferences change. The study was carried out in 1987 when there was a booming housing market and households felt confident to carry out the house extension due to the opening up of price differentials. In terms of housing requirements, Gosling *et al* (1991:30) argued that house extension should be considered as *'an integrated element in a dynamic market system'.* The rationale raised here is that, with rising housing prices, households are inclined to extend. This is simply because the price of a small house and the costs of extension added together is much less than the price of a larger house. Furthermore, where land for housing is in restricted supply, and faces stiff competition from other users, this will lead to more intensive use of the land and house owners tend to resort to house extensions unless they are willing to substitute capital for land as the price increases.

Another study by Potepan (1989) demonstrated that, in the late 1970s and early 1980s, high interest rates made house improvement more attractive relative to moving among house owners who held fixed rate mortgages in the United States. Mortgages in the US are normally based on a fixed rate at the initiation of the sale contract and, throughout the life of the mortgage, house owners are locked into a repayment scheme based on the old interest rate. Potepan pointed out

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2 The term extension here is used to describe additions to living accomodation in existing property which result in increase in the floor area. It is seen as part of the general process of updating and upgrading housing by means of maintenance, repair and rehabilitation. Rehabilitation which involves no increase in floor area is defined as an operation to bring a dwelling up to a habitable state, i.e., refitting a bathroom or kitchen, double glazing windows or insulating lofts and walls.

that, if interest rates rise, a financial advantage can only be maintained by continuing to own the existing house. Due to the clause in the sale contract, the house owners are not able to capitalise the lower interest rate into a selling price. Moving then requires the house owners to surrender the advantages of the previous mortgage and start a new one based on the new higher interest rate. For house improvement to be carried out within or adjacent to the existing house, Potepan states that several constraints may have to be considered, i.e., plot size, the layout plan of the house on the plot, the previous construction methods used, etc. In some circumstances, an extension involving major works would undoubtedly incur high costs and moving would be a better alternative. However, for households who are only considering a minor extension which is only a small increase in their housing consumption, then improvement would be the most economical option.

Schwab (1985) has also considered the influence of changing nominal interest rates on housing and mortgage demand in the United States. In order to keep their existing loan, households turn to house extension as a means to increase housing consumption. Other analytical studies on the demand for house improvement have also been carried out by Mendelsohn (1977), Shear (1983), Boehm and Ihlanfeldt (1986). By using various microeconomics data sources, they have managed to examine the activities related to house improvement and repair work carried out by the owner-occupiers. The results presented in Mendelsohn (1977), are relevant to the empirical work present in this particular research because the focus on the house improvement expenditure of owner-occupiers is similar to that in developing countries. The Mendelsohn model is discussed in greater detail in Chapter Eight which focuses on the analysis of the cost of transformations.

Apart from the influence of the housing market, locational factors and residential environment may also affect the expenditure on housing extension (Kirwan & Martin, 1972, Gosling *et al*, 1991). In terms of residential environment, what spell good investment in housing extension are the physical condition of the properties in the neighbourhood, the environmental quality and the accessibility to various urban facilities, i.e., including employment opportunities. In the United States, the higher house improvement expenditures by black households in the inner city areas are mainly due to the limited high quality housing stock available to them.

Households income is another determinant of the expenditure on housing extension although it may be not always be the significant factor (Zeigert, 1988). Seek's observation in Australia suggests that it is largely the households in the higher income groups that set off to carry out improvement to their houses. Similarly, the study carried out by Carmon and Oxman (1986) in the Neighbourhood Rehabilitation in Israel, shows that higher income households tend to invest more in extensions than low-income households. Their findings show that the size of the extensions of higher income households is significantly larger than those of low-income households and, among those who extend their dwelling units, there is always at least one member of the household who has a permanent job.

2.1.1 Family Life Cycle in Housing Adjustment

The family life cycle has long been an important element in the field of marketing research and this has also been associated in the analysis of household consumption[3] and tenure determination. The two most quoted empirical researches on the family life cycle were carried out by Wells and Gubar (1966:355) and Duvall (1971). The former pointed out that generally households would undergo typical orderly stages through life in terms of the age of the youngest child. These are as follows:-

- *young, single, bachelor stage*
- *newly married couples with no children*
- *young married couples with dependent children*
- *older couples with dependent children*
- *older married couples with no children living with them*
- *older, single people*

Wells and Gubar had been able to predict consumer behaviour of each household by using the value of the above life cycle as an independent variable. They are aware that some households could not be neatly categorised into any of the above stages, i.e., widows or widowers with young children, and married couples with dependent parents staying with them but this group usually account for only five to ten percent of their survey data. McLeod and Ellis (1982)

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3 The variables used to measure housing consumption by McLeod and Ellis are area, number of rooms and number of bedrooms.

consider the single parent family and elderly singles to be relatively unimportant too and termed these as 'non-consequential' stages. Although these stages may not be given much attention in normal households in the developed countries, they may be crucial where the extended family system is a way of living in most developing countries.

In developed countries, households in similar socio-economic circumstances tend to have similar housing demands. These demands tend to increase to a peak when the family reaches the end of the expanding stage of its life cycle and its income is at the highest level. The demand for space then falls sharply when the household enters the post family stage and the income level falls at retirement. Duvall's approach is more concerned with the maturation of the eldest child. He argues that family role development and requirements (for example, housing needs) depend on the growing stages of the eldest child. The need becomes acute when the eldest child reaches the schooling stage and more crucial when he or she reaches the adolescent age as room sharing for children of opposite sexes becomes less acceptable.

Contrary to Wells and Gubar's work, McLeod and Ellis (1982) found that wealth and income are more important influences on housing consumption than the family life cycle. Using samples of house buyers in Perth, Western Australia, McLeod and Ellis pointed out that the existence of pre-school children does not generate an increase in household space and room consumption. Marriage partnering and initial schooling are the significant stages. However, once the child rearing is completed, there is evidence of a reduction in housing consumption. This contrasts with the work of Doling (1976), among owner-occupiers in Birmingham, where there is no evidence of a reduction in housing consumption among households in the post-family stage. Doling's findings confirm that families in successive stages of life cycle occupy larger houses, regardless of location. If the post-family stage does not see a return to smaller housing, this reflects the increased purchasing power of the changing household structure. This is a case of greater wealth as age increases allowing the acquisition of bigger and better housing. Where there is an increase in per capita income among households in the post family stage, there is a need for extra space and rooms for their visiting grandchildren, or they still intend to keep to their previous habits and lifestyles .

In addition, McLeod and Ellis (1982) found that family life cycle has no significant influence on housing location even though wealth and income are both significant constraints on housing consumption within each stage of the life cycle. There is a tendency among the households with no children to increase the equity in their housing by reinvesting the proceeds of a previous sale. Once this early life cycle stage is passed, and when there are dependent children involved, then the financial commitment of the household for housing consumption will be reduced significantly.

In contrast to the typical post family stage of the industrialised countries, the elderly in most developing countries tend to be active in making larger dwellings. Owner-occupiers do not buy and sell house as an adjustment process. Houses are seldom bought and sold. In developing countries, houses are generally regarded as both consumer good, and durables to be handed down from father to son, or from parents to children. This act of handing down represents the accumulation of the family's wealth is clearly exemplified in the early transformation study in Ghana (Tipple, 1991).

2.1.2 The Impact of Family Life Cycle on Decisions to Improve

Households very rarely remain completely satisfied with the same housing indefinitely. As the life cycle progresses, there are changes in the household economic circumstances. With these and increase in wealth, the household will want and can afford more housing services. Certain features in the house would also have become outdated. All these factors increase the demand for improvement in the housing or else they will lead to what Seek (1983) termed 'housing stress'. Clearly, there is a gap between the actual and the desired level of housing consumption.

However, households do not adjust immediately when there is a change in demand. Decisions will be made regarding the course of action to be taken when the 'stress' reaches the critical level. Different households have different tolerance levels for stress before taking any action. Whatever the adjustment is, it depends largely on the costs involved. It may be beyond the household's means or the cost may be higher than the benefit derived from the change. When there is no action taken, then the tolerance level has to be pushed upwards, i.e., the households may decide

to adapt to the situation by changing its housing aspirations (Michelson, 1977). Changes in income, wealth and status are factors that can push the tolerance level either upward or downward.

According to Seek (1983:457), most households are likely to desire major housing adjustment only after a fairly long period. This period will be affected by the introduction of 'discreet events such as the arrival of children or of parents, a promotion or a change to a better job' which he termed 'shocks'. It is obvious that, as a household increases in size through the addition of children or other dependants, or reduces when the children leave to form their own households, needs and demands for space and other housing goods will change. For some households, these adjustments are made in anticipation rather than in response to socio-economic circumstances. For example, a pre-family stage household may decide to improve in anticipation of starting a family or a household may decide to move to increase its housing consumption before the arrival of another child.

Almost all the housing evidence gathered suggests that house owners tend not to move frequently and normally live for a fairly long time in the houses that they bought, making improvements when the desired level of housing consumption changes (Doling, 1976; Seek, 1983; Tipple, 1991). If this be the case, then the length of occupancy is an important determinant in reflecting the housing consumption pattern of a particular household over time and the sort of improvements that are carried out to their existing house. Not many households, especially the first time house buyer, can afford to carry out substantial improvement as soon as they purchase the house. For those who bought older houses, the improvements cost to upgrade these houses to modern standards can be very high. The findings in the Adelaide survey by Seek (1983) reported that nearly half of the improvers had intended to make improvements at the time of the purchase.

Even though housing is a consumption good to the owner-occupier, Gosling *et al* (1991) argue that the household's motives in extending are similar to those of a housing developer because both expect to extract a financial return from the investment especially for large scale extensions.

However, small scale improvement is undertaken mainly for consumption purposes. This certainly contradicts the concept of filtering where the argument is that households adjust their housing consumption upward by moving and that the vacated houses are filtered downwards to the next-lowest income households. Prior to the above study, Goodman (1976:857), argued that, 'in order to change its consumption, a household usually must move to another residence'. The extent to which a household can alter its consumption of housing services without moving is quite limited. The general line of argument here is that Goodman blamed immobility for causing the inefficient distribution of housing units to different households.

2.1.3 The Impact of Family Life Cycle on Decisions to Move

Literature on life cycle and housing adjustment has a common belief that changes in the stages of life cycle will generate residential mobility because they will affect the specific housing needs as the households undergo certain changes. However, there is little agreement amongst geographers, economists and demographers concerning the role of life cycle in the decision to move. This lack of agreement on the life cycle explanation has yielded insight into the reasons for residential mobility. One of the early studies of residential mobility as a means of making adjustments in housing consumption (Rossi, 1955), has remained the starting point for all subsequent research. Rossi hypothesised that housing need or dissatisfaction arises largely from changes in household life cycle. Similarly, Clark and Onaka's (1983:52) view on the different stages of life cycle are as follows:

- *households at different stages of life cycle have different housing requirements, hence have different priorities regarding housing consumption and*
- *households at different stages of life cycle experience, on average, different frequencies of change in economic and demographic characteristics.*

Households in the earlier stages of the life cycle tend to require more space, especially in the young and mature family stages. For a start some younger households tend to move into a cheaper house as a way of gaining access to house ownership, then build up some equity in the house. Later on, with some savings, they are able to afford the initial down payment on a bigger

house. During the 1970s, this was a useful strategy as the inflation rates were high during that period (Seek, 1983). However, in the United States, during the late 1970s and early 1980s, the home improvement expenditure rose most rapidly. During this period the interest rate rose sharply, making the old mortgage with below market rates more valuable (Potepan 1989) and, with the low per capita income, there was no demand for additional housing. Therefore, for households to increase their housing consumption, the best option was to carry out the house improvement instead of moving.

Compared with households in the later life cycle, movers in the pre-family and young family stages only stay on the average two to five years in their first house and they usually buy more expensive houses than they sell. Clearly the housing requirement during the earlier life cycle stages are on a more modest scale, and they are prepared to live in a house with fewer facilities and move when their housing needs increase as their family grows and also as their financial circumstances improve. To some extent, these categories of movers are similar to the improvers in the early life cycle stages who also purchase a modest house initially as a means of reducing the cost of housing and with the intention of making improvements to it later on.

For the movers, the financial cost involved is very high especially for those who are making upward adjustments. They have to pay the additional price, i.e., the difference between the original and the 'new' house, other incidental costs such as removal and transaction expenses, sale commission to the estate agent, legal fees, stamp duty and mortgage fees. The non-monetary cost of giving up the sentimental attachment to a familiar and convenient surrounding and the social ties developed over the years can be quite high. On top of that, during the improvement period, there are bound to be inconveniences and problems incurred. If the total cost of moving and improving is much higher than the benefits derived from it, then the household will just decide to remain in the current house instead. Very often the total cost of moving to a similar house to the one that is improved is more than the actual expenditure on improvement itself (Seek, 1983).

The Birmingham owner-occupier market study by Doling (1976), which looks at the impact of the family life cycle on housing, concentrates more on the residential locations and housing choices made by the households when they move. Lower density houses cost more. So in order to purchase these houses, movers either obtain a large loan or pay a large deposit. Both indicate that the households can afford to pay more or that they are able to pay more at that very moment. Doling states that it is normally the latter because young households who have the intention to move are more likely to own a previous house and are able to use the profit made on its sale to finance the purchase of a larger, if not an expensive, house. In other words, the willingness to pay for a house can only be fulfilled by the means which wealth provides, and wealth is correlated with the family life cycle.

Generally, movers in the post-family stage would have bought a higher value house in the first place but their adjustment would normally result in reduction in housing consumption. The findings in Australia on households in the post-family stage of their life cycle show that they would adjust their housing consumption downwards, i.e., 20% would move to a lower value house or 15% would move into a house with fewer rooms (Seek, 1983). It certainly would be most absurd and uneconomic to reduce the surplus space by demolishing part of the house. In the process of selling their house, on average these post-family households experience a net gain although this results in a net loss of space. Some households sell their house because they can no longer afford the maintenance of their current house or simply because they need the cash to supplement their already low income at this stage.

In summary, Seek states that the kind of adjustment that the household desired will determine the final choice of adjustment alternatives. Those who adjust downwards, almost always made the decision to move while those who want to increase their housing consumption, either improve or move. However, where they cannot meet their housing preferences by improving, there is no alternative but to move.

2.2 FORMS OF FILTERING IN HOUSING STOCK

In the field of housing, filtering frequently means a 'process' whereby households adjust their housing in accordance with their changing income and preferences, whether or not the result of the housing condition will be socially acceptable at that particular point of time. Several authorities and housing analysts have indicated that filtering of housing stock has not only benefited all income groups but it also has a world-wide implication. However, in the context of developing countries, debate over filtering of housing stock mainly implies a process contrary to that detected in most developed countries like the Unites States, western Europe and Australia.

2.2.1 Downward Filtering of Housing Stock for the Poor in Developed Countries

Literature on filtering in the western contexts generally suggests that the lowest-income households benefit indirectly from the provision of houses for high income groups through the handing down of the old housing stock. The wealthy households tend to live in the newest and best housing while the poor tend to live in the oldest and poorest housing conditions. The wealthy are attracted to the newly constructed housing units, and this will bring about moves from housing already occupied by them leaving behind properties which are thought to filter down to lower income groups. This traditional concept of filtering originally started in Great Britain in the aftermath of the Industrial Revolution, during which the poor in the cities were forced out of the housing market. The health and building codes were enacted in response to the substandard new construction for the poor, but these new codes required higher, more expensive building standards than previously. The poor either had to build illegal structures, or to resort to the older stock left behind by those more prosperous households who moved up to new and better housing (Baer and Williamson, 1988). One of the first official references on the concept of filtering in Great Britain is found in a special housing committee report which states that:-

> *"when post-war building began it was hoped that there would be a gradual movement of the working class population out of the slum into better houses. This might occur in two ways, either the slum dweller might go direct into a new house or a process of 'filtering up' might occur under which the dweller would move from the slum into a better pre-war house, the tenant of which would, in his turn, move into a new house. Both of these processes have of course occurred, but on a disappointingly small scale". (National Housing and Town Planning Council, 1929:15).*

Once this pattern of housing supply was recognised, filtering was promoted in those days as a process of providing the poor with low rent housing. The filtering process was later abandoned in Great Britain in the 1930s but the importance of this concept was further deliberated and acknowledged in the housing policy debate in the United States. The middle and high income groups were shown to have largely benefited from the various housing programmes by moving into the suburbs and leaving the poor to take over the old housing stock. Most of the views are closely related to the traditional statement postulated by Ratcliffe (1949) where the filtering process is the result of the decline in value of the property and a change in occupancy. Ratcliffe questions whether the lower class can rely on the filtering process as a replacement of substandard housing;

> *"The question to which we should address ourselves now is whether in the future we can count upon this natural market process to force out, within a reasonable time, the substandard housing that menaces society. We should consider whether, as part of a positive housing programme, a controlled system of acceptable housing can be precipitated to the bottom of the market by a conscious manipulation of the forces that condition of the filtering process"*, (Ratcliffe, 1949:330).

Despite of all these uncertainties, filtering has been discussed throughout the controversial debates on housing policy and has been previously advocated by theorists as a means of housing provision for the low income groups throughout the mechanisms of private housing market. On the other hand, Lowry (1960) views filtering differently. He argues that the changes in occupancy are thought to be triggered by the household's change in "preferences for modernity" and a move into houses with more up-to-date facilities. The market finds it profitable to keep on supplying these new houses to them. For the next-lower income group, the vacated houses are usually considered as superior in quality and appear to be economically attractive since they are available at decreased price. Consequently, these old houses are passed on at lower relative prices to the lower income group. Eventually, the oldest housing will be the cheapest, and will then be occupied by the poorest. All these processes are highly dependent on changes in income, if there is no change in income, the households will not be so easily attracted to the new supply.

Those critical of the filtering concept argue that the process has not raised the standards of the low-income group, especially when the rate at which the newly formed middle-income group is

increasing greater than the rate of housing construction. Leven *et al,* (1976:46) state this clearly in their definition of filtering where, in terms of households' preference, they have completely switched from considerations of supply to those of demand.

> *"Filtering takes place when a household, without change in its income or tastes, experience a change in its housing bundle to a different rank on its scales of preferences....This consideration elicits two significant corollary definitions - for active and passive filtering: Active filtering occurs when a household experiences a change in the ranking of its housing bundle by moving to a different unit. Passive filtering occurs when the household does not move but experiences a change in its housing bundle nonetheless".*

In response to the debate at that time, Grigsby (1967) introduces filtering in terms of the physical quality of the dwelling unit and the welfare of the occupiers. To some extent, he is concern with individual preferences regarding the change in quality.;

> *"Filtering (changes in house prices and rents) must be measured while holding income, quality and space per person constant: or, in a more relaxed form, that filtering occurs only when values decline more rapidly than quality, so that families can obtain either higher quality or more space at the same price, or the same quality and space at a lower price than formerly",* (Grigsby,1967:17).

A common feature of the filtering theory is that it is formulated in the western industrialised countries where private housing markets are established and organised. In this context, filtering has often been advocated as a policy whereby housing units are built for the higher income house buyers and, when these houses depreciate in terms of quality and value, they become readily available to the lower income groups. The filtering process is then perceived to be a justifiable move for certain policy directions regarding the type of housing stock to be constructed in response to the housing demand of different income levels.

In Japan, subsidies are given to those households in the higher middle-income groups to enable them to purchase houses that are being supplied in the country. The lower income group is then expected to benefit from those houses that are vacated by the middle income households. However, due to the exorbitant cost of land, the intended 'filtering' process seems to have failed (Hirayama & Hayakawa: 1995).

Despite all the controversial debates, filtering cannot be considered as a means of housing provision for the low-income household (Forrest and Murie, 1994). The exceptionally poor households tend not to move from their comparatively old and badly maintained houses because the free market, like the filtering mechanisms, tends to reduce the market value of these houses, with a possibility of being further reduced in terms of values over the years. Recent filtering studies in Southern England (Forrest, et al, 1993; Forrest and Murie, 1994) show that houses that are vacated do not filter down, which is not in line with the filtering theory. Forrest, et al (1993:116) argue that the pattern of change is a matter of empirical study rather than conforming to any theoretical model. On the other hand, Tipple (1997) argues that transformation generally involves a non-mobile population and will expect no filtering process among these households.

2.2.2 Upward Filtering of Housing Stock in Developing Countries

For developing countries, the filtering process is mainly about filtering up of the housing units, i.e., the downward 'raiding' by the middle-income group. In other words, filtering in developing countries is defined as;

> *"a process in which a residential area which is predominantly inhabited by relatively low income households becomes inhabited by relatively high income households,"* (Kool *et al,* 1989:189).

In the case of developing countries, the inflation rates and the demand of housing at different income levels are often high while the housing supply is chronically limited. Often the prices of these houses would rise faster than real incomes. These conditions inevitably lead to the reduction of housing stock in the market. As Strassman (1977:313) states:-

> *"Given the rates of income and population growth for poor countries and the low rates of construction, housing shortages and upward filtering (of houses) are perhaps the more common phenomena."*

In the case of the higher income group purchasing housing units which are intended for the low-income households, this upward filtering (of houses) is regarded as downward 'raiding' by Strassmann. In a major, and yet provocative, development in the use of the term, Strassmann

(1982) regards 'upward filtering ' as a means to provide housing for the middle-classes and temporary accommodation for the lower classes:

> *"Someone has to build middle-class housing: why not the poor? .....They can become the suppliers of middle-income housing by living on the premises during construction"*, (Strassman, 1982:5).

However, the concept of upward filtering gives rise to two contradictory situation, i.e., 'voluntary' and 'involuntary' filtering of the housing stock which Johnson (1982) suggested as follows:-

> *"Involuntary filtering ... occurs when the original occupants of a dwelling are 'priced-out' of their home and replaced by a household with a higher income...Voluntary upward filtering is...voluntary sale of property of suddenly appreciated value"*, (Johnson,1982:175).

Johnson and Strassmann are unified over the argument on the voluntary type and feel that the middle-income housing built by the poor would have cost less than that for which the government or formal private sector could have constructed them, and that the poor benefited with a reasonable profit in the process.

Ferchiou (1982) was the first to articulate the wider issues on filtering for developing countries by examining the turnover process. She advocates that developing countries should not solely concentrate on the housing provision but also monitor the redistribution of the old housing stock. According to her, a coherent housing policy is one that understands the basic input of the process of filtering. Enhancing access to housing finance for the middle income households would indirectly increase housing supply for the poor.

Transformation is normally associated with the physical characteristics of the housing units but it probably represents the rising of the household's 'housing careers' which, according to Baer (1991), is the improvement in their housing over time during their life-cycle. Baer strongly believed that a household need not move to have filtered and this process is termed as 'welfare filtering'. On the other hand, Grigsby's (1967) definition suggests that welfare filtering occurs only when value declines more rapidly than quality so that families obtain either higher quality and more space at the same price, or the same quality and space at a lower price than formerly. To some

extent Grigsby is concerned with the individual preference over quality changes which reflects the welfare of the households.

2.3 TRANSFORMATION THEORY

There is relatively little literature on housing transformations per se. This sector, like the housing market in general, is often complicated by the heterogeneous character and the physical conditions relating to durability of housing. Several theoretical analyses examine whether a building will be allowed to deteriorate, be maintained at the quality level that is socially accepted or be upgraded assuming that the owner-occupiers maximise the present use value of the dwelling unit.

The activity related to the transformation process in the public low cost housing projects is often confused with so many other terms such as renovations, extensions, expansions of small units, alterations, home improvement activity or incremental building activity. However, for this study, transformation represents an activity which involves alterations and extensions to the building structures which were originally constructed by formal private contractors for the public sector. These alterations and extensions were mainly carried out to meet the needs and preferences arising from development in the households' composition and economic circumstances, rather than making good the housing features as a result of wear and tear. Oxman and Carmon (1986) in their study in Givat Olga, Israel, classify similar activity as 'self-help improvement' which was further defined as 'an addition in hard construction to the original apartment area'. The construction was carried out as a result of 'personal initiative' and was mostly financed from savings or personal loans. In urban Kenya, the term 'extension' is used to mean 'accommodation constructed on a plot over and above the legal or original main house' (Kironde, 1992:226). The main characteristic of extension activities in Kenya is the habitable space usually created for use by the occupiers which is usually separated from the main house. Interestingly enough, completion of the main house to the required level, or that permitted by the authority, is not regarded as an extension. In other words, the main house in Kenya is probably designed in such a way that 'intended' extensions are permissible and are therefore not considered as extension.

Extensions in Kenya can be classified as legal or illegal where the legal ones are those that have been approved by the authority and illegal alterations are those not accepted by the authority. It is not the intention of this study to look at every problem and difference in the definitions. Nevertheless it is essential to remember that different definitions reflect different approaches to the issues related to transformation.

Households normally decide to transform their dwellings and determine the size of their projects based on the cost they could afford and it is assumed that they expect to gain in terms of use value or market value in their investment returns. Even if there is the option to improve or to move, the costs associated with the latter are usually quite high as the transactions in a well developed housing market usually include all sorts of costs, i.e., the legal fees, commissions, inspections, etc. In developed countries, households have the option to move or to transform their dwelling unit through house improvement, and this is usually for the benefit of a single household. However, low income households in developing countries who have been allocated with low cost housing units by the government seldom move to a new unit (Tipple, 1997). In developing countries, several households could benefit from transformations of public sector housing as more habitable space or rooms are made available to them for free or for rent. Ample evidence from Tipple's study in Bangladesh shows that renters are capable of transforming their dwelling units if the conditions are favourable. This contradicts the earlier work by Carmon (1984:126) in Israel, and the notions held in industrialised countries that renters have no choice but to move in their housing adjustment (Rossi, 1955: Doling, 1976: Seek, 1983; Potepan,1989).

In cities where the poor are not threatened by eviction, there is evidence to show that they are capable of improving their housing conditions (Gilbert and Gugler, 1987). Settlements which began without services gradually achieve the status of ordinary suburbs in the city. Shacks are gradually transformed into solid dwelling units. For these households, the transformation progress is slow but consistent. When money is available, they invest in improvements to their housing. A large household which needs habitable space can extend the structure at will, the small household which prefers slightly better quality of space can achieve this goal. Spontaneous settlements offer a great deal of flexibility to the poor when compared to the public sector housing

provided for them. Turner (1967, 1979) emphasise the importance of security of tenure in the above consolidation process. Without a high level of confidence that they will retain the land in the spontaneous settlement, no household will invest their money and time in consolidating their dwelling unit.

Similarly in the public sector housing, Carmon and Oxman (1986) regard ownership as a necessity in carrying out the extension works. The two-bedroom flats built in the 1950s have been extended and the house values increased by up to 75 per cent. Households are able to increase the number of rooms or habitable space to further develop their preferences in their home. With more rooms, the household is able to provide temporary accommodation for relatives, or use the space gained for income generating activities like renting or to carry out a home based enterprise. In the transformation study, (Tipple, 1997), households expect a financial return from the investment. Other than rental income, the main motive for alteration and extension are fulfilment of cultural obligation to house extended family relatives.

As indicated earlier in the chapter, Gosling (1991) views extension activity as representing a progressive upgrading of the property to achieve higher space standards and quality. Similarly, low income households are capable of undertaking and financing transformations to their dwelling units in stages (Tipple, 1991). However, due to the underdeveloped formal financial systems in some developing countries, the involvement in capital investment is relatively low among low income households. The fundamental issue here is that these households must be able to afford the housing improvements. Although income, status and financial commitments have proved to be important determinants for housing improvements in industrialised countries this has not always been true among low income households of developing countries.

2.3.1 Innovations Through Transformations

While acknowledging the potential of transformation as a housing improvement process particularly among the low income households, criticism has also been levelled at the process of transformation on many grounds. It is always thought that, by allowing the low income households to transform their dwelling units, it will turn the orderly characteristics of the public sector housing into a slum. The transformed public sector housing in Egypt, India and Hong Kong (Greger and Steinberg, 1988) is often described by the authorities as not meeting the minimal standards. Most of the transformations, particularly in Egypt, are carried out in defiance of the building codes. Development controllers are very much against the idea of unauthorised development. Every construction process in the transformation activity is bound to be treated as a breach of regulations. Since the need for more rooms are quite critical, households tend to convert original balconies, kitchens and other habitable spaces into enclosed rooms. Full room extensions on the balconies in Egypt are supported by concrete stilts, sometimes rising to three storeys high. Even on relatively constricted sites the households are able to construct additional rooms which are often quite small. Households of these formal housing estates are not expected to carry out any transformation except for minor changes. The fact that these constructions are carried out without any advice or support from the authority, and because of the haphazard planning, they are labelled as 'slums' even if the transformations meet the requirements in the building regulations (Wilkinson and Kardash, 1992:301). Tipple's findings (1991) reported that modification on balconies is evident at all income levels throughout urban Egypt. Wealthy occupants would install aluminium frames and glaze the entire balcony. Those with lower income would install timber shutters instead or fill the openings with brickwork except for a small window.

Greger and Steinberg (1988) and Wilkinson and Kardash (1992) pointed out that it is lack of maintenance and the rigidity of the mass housing design that actually causes the formal housing schemes to degenerate from the original standard into 'slums of despair' as the households are unable to adapt to the alien environment provided. These public housing schemes were designed without any involvement from the users. Changes and adaptations were never considered by the designers or architects when these schemes were planned and built. Where 'unintended

transformation' has been carried out, Greger and Steinberg consider that the households have successfully dissolved the formerly planned housing schemes into enriched environments of impressive functional architecture. The residents' will and strength have produced perhaps not the most safe environments, but ones which are socially and dynamically alive and which contribute a great deal to the neighbourhood. These are indications of the households' successful effort to adapt in meeting the changing needs within the limits of their available resources, i.e., money, time and energy (Turner and Fichter, 1973; Turner, 1977).

Similarly, the occupiers of government provided or government financed houses in New Delhi, India, have transformed the housing estates into high density development. The incremental encroachment on 'public' space is rampant. Greger and Steinberg (1988) found that the transformation in terms of additional rooms start with semi-private space, then in semi-public areas, and lastly extending into the surrounding public spaces. Tipple (1997) considered such gain in space enlargement as an achievement in creating a variety of living and working accommodation which is clearly lacking in the former 'mono-functional' housing estates. The extent of transformations reflect the households' requirements in terms of space as well as their social status. In housing schemes where the dwelling unit has only one room, households are able to have two or even as many as five rooms after transformations. The dwelling units not only serve residential purposes but support economic activities such as nursery schools, doctors' surgeries, retail shops, workshops, etc., (Dasgupta, 1990).

In order for such transformations to take place in public space, as shown in the housing estates in New Delhi and Cairo, collective decisions among the residents are common. These decisions demand highly complex negotiations among the households particularly between immediate neighbours. This reflects the households abilities to overcome conflicting situations especially those related to access or right of way. Through negotiations, rooms are being exchanged or access being diverted or gained. This clearly shows agreements and mutual understandings have been achieved among the residents within the housing estates which appear to take over the formal development control.

The typical tenement flat in the city state of Hong Kong has not escaped the process of transformation. Prefabricated, light-weight cages are ingeniously anchored to the original concrete facade with bolts embedded into the wall or welded to the steel reinforcement (Wojtowicz). These illegal cage-like extensions are very popular even though the residents are obviously breaking the rules. Hardly any of them have applied for building approvals but fortunately the authority is tolerant towards these illegal structures.

The question that has often been raised is whether the general public still need publicly-assisted or subsidised housing schemes? Assuming that the answer is still 'yes', is it possible to plan them differently in order to improve the effectiveness and efficiency of the public investment? From the examples that have been quoted in this chapter, residents living in these housing units provided by the public sector are generally not satisfied with their housing conditions, let alone the environment.

2.4 INFORMAL WITHIN FORMAL DEVELOPMENT

In the old days, informal housing supply is generally associated with the invasion and illegal occupation of public land especially where extensive areas of state land lie close to the urban areas (Gilbert & Gugler, 1987). Such settlements are well represented in many Latin American and Asian cities, e.g., Mexico, Bogota, Manila, Delhi and Jakarta. These illegal housing developments were considered as transitional forms of shelter which would then be replaced by conventional housing, once the national economy of the particular country developed or improved. In areas where settlements occur along the road or railway reserves, these households are likely to be evicted when improvement in the country's infrastructure is called for. These displaced households would generally be rehoused in low cost accommodation provided by the government (Ameen, 1995). In such circumstances, the low income group do not choose the location but are pushed into any available accommodation provided by the authority.

Unfortunately, most households in public low cost housing in developing countries occupy small dwellings with two or three rooms with little possibility of moving to a larger unit mainly due to

financial constraints and because there are few large units available for the low income group. Those who can no longer tolerate the minimal housing space, and who can afford to, will transform their dwellings by extending or enlarging the area for habitable use to meet the developing needs of the households. Turner (1976) has consistently argued that architects believe too strongly in the idea that good housing is an end in itself. However, good housing should not be judged only in terms of whether the roof does not leak, or the walls and floors do not have any cracks, or the minimum room sizes are not less than those stated in the building regulations. No one doubts that, ideally, most houses should be well designed and adequately serviced, but the low income households criteria would be whether the houses allocated to them suit their needs. They obviously do not, or else why should the transformation process takes place? In order to get a larger house, these households have to extend it within their financial means and this is generally carried out by the informal sector.

It has been acknowledged that the informal construction sector has some advantages over the formal sector as it is able to avoid labour regulations thus producing with lower labour costs. With such low overheads, firms are able to respond quickly to changes in demand and still manage to keep their operating costs low. Since transforming households have low income and the decision to transform stems out from their own initiative and using their own resources, they certainly want the best value out of their money by hiring the informal sector to carry out the transformations. Tipple (1997), described this as informal development to the developed areas. Conceptually, formal and informal housing tend to be associated with the difference in the housing quality. Formal housing is often assumed to last longer since it is built by the formal sector or enterprises that are recognised by the authority. It is assumed that the products of the informal sector are often chaotic but this is often not so. In transformations, the activities between formal and informal sectors is complex as it represent the intervention of the informal sector within the formal sector. Most of the transformations in small government-built housing are carried out by the households against planning and building regulations. As a result, part of the dwelling is built by the formal sector and part by the informal sector.

2.4.1 The Construction Process [4]

In developing countries, construction in the transformation of the government built housing has always been labour intensive. The informal construction process is usually self-managed with the participation of skilled tradesmen. It is labour intensive and involves very little sophisticated construction technology. The following are Tipple's findings on the construction process in his transformation study in four developing countries.

Most of the construction process in Egypt is carried out by contractors who would sometimes also be involved in the supply of building materials and hiring of workers on the building site. Skilled workers constitute at least half of the work forces and are employed on a permanent basis. They are typically involved in concrete mixing and casting, block or brick laying and finishing. Unskilled workers on the other hand are employed temporarily and this mean that they are not entitled to medical insurance, social security and bonuses, etc. The structural design for the extension works is generally based on the contractor's experience of the construction technique rather than any formal training. Due to the structural uncertainties, most of the structures constructed tend to be over-designed but not necessarily meeting the structural standards as workmanship and quality of the concrete work are quite shoddy. In some concrete work, it is reported that the heavy aggregates tend to settle at the bottom and lots of honeycombs appear at the top. It is not uncommon even to see exposed reinforcement bars after the formwork is removed (Tipple, 1997).

In Zimbabwe, it is the single tradesmen that dominate the construction scenes rather than single contractor. One of the reasons for this is the method of payment customary in each case. In a job where a contractor is engaged, the construction process is much shorter than the work done by single tradesmen. Hiring a contractor would involve large sums of money. Self-help is utilised for less costly extensions. However, single tradesmen and contractors handle large extensions and both have a large range of job costs. For very large jobs, owners may get household members to help so as to economise on expenditure. Furthermore such extensions can be quite complex and the job will not be completed just over the weekend. Most of the finance for the extensions come

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[4] This section draws mostly from Tipple (1997).

from savings and income. Family funds are especially important for the retired heads of household, many of whom receive money from their children to assist or enable the transformation activity. According to the study, the frequency of formal sector borrowing is low (Tipple, 1997).

Similarly in Ghana, it is the single artisans that are being hired to carry out the extension works. It normally starts with the mason who very often is the chief co-ordinator of the building team and has a say in the choice of other artisans, e.g., carpenter, plumber and electrician. Employing single artisans is very popular among the Ghanaians and the contractors are losing ground. Self-help is not significant in extensions works in Ghana. The minimal casual labour that is provided on the site is normally done by teenage or older boys in the households and this only involves the unloading of materials. If a contractor is engaged, payment tends to involve large sums as the work progresses quickly and all the processes are completed within a short contract period. If single tradesmen are engaged, however, the owner can afford to delay the construction works so that money can be gathered and payments made in accordance to owner's resources. For a two storey extension, a contractor is normally involved and he will negotiate directly with the owner regarding cost. The extension works are usually carried out intermittently and the construction period can be long. When there is insufficient fund to carry on the extension, the job will be suspended for some time. The workers are laid off, leave the site and start looking for another job. When the work resumes, the same workers will be hired again and if they are not available, the owners are willing to wait until they have finished the job that they are currently doing. In cases where the clients provide tools and equipment, and supply of materials, then the workers will be paid on a daily basis. The small scale local artisans (masons, carpenters, plumbers, electricians, welders, etc.,) are able to build at cheaper rates than the formal sector because their overheads are very low and many do not pay income tax (Tipple, 1997).

Unlike the formal sector practice, the majority of informal sector contractors and artisans do not enter into written agreements with house owners when they are involved in the transformation activities. However, the conditions under which jobs are awarded to them, the fees and payment scheduled, and supply of materials are usually discussed in the presence of witnesses. Within

local culture, these discussions and decisions taken in the presence of witnesses constitute a valid agreement. Financially, the contractors and artisans have their own issues to confront. When work is completed, temporary workers would demand payment immediately because they feel that the contractor would not be able to pay large sums of money in arrears. However, a problem may arise if the client has not paid the contractor in advance for the building work and the latter had no cash in hand. The constant increase in price of materials is also a major problem. Contractors tend, however, to shift this onto the client through an initial agreement that he or she must purchase and supply the materials for the work. This removes a major source of conflict between client and contractor or artisan but increases delays which may lead to laying off the contractor. Some clients do not pay regularly, others complain that contractors make frequent demands for payment.

2.5 PRODUCTION OUT OF CONSUMPTION

Despite the stringent planning regulations which most developing countries inherit from their colonial masters, it is common for households to use their home as their work place. A house as an environment within which economic activity takes place can be regarded as part of the production process. The benefits arising from being well-housed are obvious but if housing is able to provide opportunities for commercial activity, small-scale manufacturing, retailing, etc., these will generate income in the neighbourhood. In Great Britain the Industrial Revolution actually started from home-based manufacture. Dwellings have never been designed to allow for any sort of economic activity especially in government built housing schemes because that would constitute a change of use from residential to commercial. Therefore, it is quite common for house-owners to alter their dwelling units to accommodate these home based activities. Studies by Sarin (1982), Dasgupta (1987), Tipple (1991) have demonstrated the abilities of the house-owners cum users to adapt to the housing layout in order to enable them to carry out the economic activities.

> *"If there is one lesson for planners in the massive literature on slums and squatter community life, it is the finding that housing in these areas is not for home life alone. A house is production place, market place, entertainment centre, financial institution and also a retreat. A low-income community is the same, only more so. Both the home and*

> *the community derive their vitality from this multiplicity of uses. The imposition of artificial restrictions on both, would only hinder their growth and development", (Laquian, 1983a: 85)*

The use of dwelling for making, storing and selling of goods is so universal that Fass (1977) treats the dwelling unit as a piece of productive infrastructure rather than just a household consumption. Many low-income households make their first attempt into earning a living or getting additional income this way because not much capital is needed to start a shop in the house or start a small business. The space in the dwelling unit can provide some income. The household would buy items at retail prices and selling them in small quantities to meet the daily need of the residents in the neighbourhood. Given the smaller amounts of capital used, it is likely that men and women setting up small retail establishments in the home prefer to obtain relatively stable earnings rather than going for relatively higher and less stable earnings (Fass, 1980). Another possible reason is that many women prefer not to work far from home because of obligations to families and children.

The link between housing and employment in the informal sector is interrelated where economic activities lead to housing improvement. The latter then lead to employment prospects and productivity. Not surprisingly, a large number of informal enterprises, particularly the small-scale enterprises (SSEs), are either based in the home, attached to the home or on a residential plot or on the land adjoining, or are within residential areas (UNCHS and ILO, 1995). Some operate almost invisibly in the interior of the home where they can avoid regulations on minimum wages and fringe benefits. Thus, they can charge low rates and larger firms are most willing to sub-contract their jobs with this informal sector. Many of the HBEs in India are located even on small plots (Nientied *et al,* 1987). In terms of the use of space by the urban informal sector in India, Seshachalam and Rao (1987) pointed out that the business activity is closely located to the dwelling unit. A shop can be in front with a dwelling unit in the backyard or vice versa. If the building is two storey, the ground floor could be turned into a business place while the first floor is used as a residential unit or vice versa. The house-owner may rent out a space for business or runs the shop himself.

Similarly, in the Bangladesh transformation study sample, spaces dedicated for commercial use tend to be rooms facing a street at the side of a house (Tipple, 1997). Shops are two to three metres wide and roughly the same for the depth, and typically sell a range of food and household goods, or specialised goods like clothing or electrical appliances. There are also barber's shops, tailor's shops, and stationer's and photocopiers. Three houses have specialised space for manufacturing, two of these make shoes. Some transformers prefer to use rooms for non-residential purposes because, apart from the higher rent which may be chargeable, they would reduce the pressure in bathrooms, toilets, and kitchen spaces in the house. The latter seems not logical as one would expect the number of people using the toilet facilities will increase when there is commercial activities. Furthermore, it is likely that the increasing levels of commercial activity will encourage transformations.

Most governments in developing countries tend to adopt small plots for their low-cost housing schemes in order to make the services provided affordable to the target group. However, where space is needed for income generating enterprises, such planning regulations seem inappropriate. The small plots allocated for each dwelling unit can be seen as an inhibiting factor to the households who are planning to start small businesses. However, Nientied *et al,* (1987) proved that limited plot size in India is no barrier at all in starting an economic activity. There was a case where cycle repair shop was found located on the roof of a house which is only 22 square metres. The main reason why government officials are reluctant to allow commercial activities to take place within the residential area is because existing utility services such as water, electricity and even telephone lines may not be able to cope with the increasing demand.

Renting out rooms is another aspect of income generating for the households. It is a form of supplying accommodation for those who cannot afford to own a house. Renting of space to another household has been one of the main motives for extension to government-built housing in developing countries (Tipple, 1991,1992). Ameen (1988) reported that, in part of Dhaka, Bangladesh, households who are paying highly subsidised rents of a single room dwelling unit will then rent out the extra space that they have extended at market price. In India, flat owners not

only rent out the extended space for residential purposes but also for public use, i.e., a doctor's clinic, a pharmacy and even a primary school (Dasgupta, 1990).

A single-roomed addition designed as a simple garden shed is very common in Zimbabwe (Tipple, 1991). Unlike the sub-tenants in Bangladesh who pay market rents, these garden sheds are rented out for a quarter of a labourer's wage. Tipple and Willis (1991) argue that the growth in the supply of rental housing depends on the growth of owner-occupiers at the lower end of the market. In order to overcome the acute housing supply, owners should be encourage to rent out rooms and this can be a vital part of the government's enabling policy.

2.6 SUSTAINABILITY AS A CONSEQUENCE OF TRANSFORMATION

Human settlement studies are currently focused on urban sustainability which certainly has a significant influence on urban development in the future. There is general agreement among experts on development, on the definition of 'sustainability' as suggested by the World Commission on Environment and Development, as meeting "the needs of the present without compromising the ability of future generations to meet their own needs...." (1987:8). However, Choguill (1996) argued that the definition does not give an indication of how the progress towards sustainability can be measured within the urban context. In other words, there is no benchmark which can be used to measure the level of sustainability achieved. Another definition of sustainability put forth by Hardoy, Mitlin and Satterthwaite (1992) states that urban sustainability should be defined to include the minimisation of the use of non-renewable resources. It is generally agreed that, in order for human settlements to be sustainable, criteria in terms of environment, economy, social and technical need to be considered.

Tipple (1996) pointed out that transformation-related activities are very much in unison with the aims of sustainable development and the GSS. He claimed that transformation is an effective mechanism for housing supply. A study in Ghana during the 1980s showed that the major increase in housing stock there had been from extensions to existing houses rather than from direct new provisions from the authority (Malpezzi, Tipple and Willis,1990). Transformation plays

a major role in the housing supply process, and this in turn helps to increase the intensity of development within the established urban area. This way, more people are being housed close to the city centre and thus reduce the number of commuters travelling from their homes to their work place.

Apart from the gain in habitable space for the households, transformation increases the value of property within the neighbourhood. This represent the potential for raising property taxes which would in turn increase the revenue of the local authority. With additional revenue, a local authority is able to maintain and cope with the increase in demand for services which may follow from the increase in development on site. A realistic property tax proposed by the local authority not only indicates the acceptance but also the legalisation of any transformation that takes place within the housing estates.

The importance of continual improvement and maintenance of existing housing areas has been emphasised by Tipple (1996) as this will enhance the long-term social relationship which make life in the city viable. In terms of social sustainability, transformations have managed to reduce or at times control mobility which may cause the breakdown of existing social relationships within the neighbourhood. With transformations, households are able to cope with the developing needs and changes; plus all sorts of housing stress and shocks; and yet are able to remain in residence for a long period, even for generations. Most of the transformers are long established in their neighbourhood and so they are able to maintain the existing social network. Should these areas be designated for redevelopment, which often happens, the entire social, cultural and economic network will be disrupted. Therefore, attempts must be made to preserve and enhance social cohesion which may have taken decades to build.

2.7 SUMMARY

Theoretical perspectives has been the focus of this chapter. The issues on housing adjustment, filtering and transformations have been discussed and problems related have been highlighted. Examples of other empirical studies have been used to illustrate some of the issues raised in both the developed and developing countries. All the studies support the hypothesis that users

(regardless whether they are owners or renters), are able to change their housing consumption in such a way, as to increase the use value and market value of their houses. In developing countries, whether the dwelling units are single storey or multi storey, the studies show that the households are capable of adjusting their housing needs and preferences at no extra cost to the government.

On the subject of sustainable development, it has been shown that transformations have the potential of increasing the housing stock in the urban setting in a manner that has been set in the GSS. With respect to HBEs, transformations have enabled economic activities to flourish. From the general perspective, "transformations do contribute more than they take away," (Tipple, 1996:375).

CHAPTER 3

CHAPTER 3

LOW COST HOUSING PROGRAMME IN MALAYSIA

3.0 INTRODUCTION

Malaysia, like many other developing countries, has embarked on a low cost housing programme for almost four decades. The concern for adequate housing was mooted in 1946 when the Malayan Union government appointed a special Housing Committee to look into "....the nature and extent of the housing problem in the country and the financial and other measures required for its solution" (Federation of Malaya 1950:43). The report of this Committee (White Paper No 70 of 1949) claimed that:

> *".....the 'hard core' of the housing problems to consist (sic) firstly, of houses which are inadequate both with regard to accommodation and conveniences and secondly, of houses which are suitable in themselves but have become a danger to public health due to gross overcrowding. The first group consists mainly of squatter type dwellings....The second group is composed of structurally sound dwellings which could afford satisfactory accommodation for a reasonable number of people but which have been split into numerous cubicles with consequent serious overcrowding....".*

Clearly, prior to independence in 1957, the Government's main concern was for public health and safety. A series of municipal and local council housing ordinances, based on the English statutory planning tradition, were introduced. The Housing Committee recommended that a Building Trust be established and in 1950 it was set up as a federal agency, providing technical and supervisory services to the state governments. This marked the beginning of the public sector involvement in low cost housing programmes in the country. The Trust came into force on July 1, 1951 (Federation of Malaya 1956:105). In 1955 it was placed under the Ministry of National Resources and Local Government and, in 1957, it was moved to the Ministry of Interior and Justice (later known as Ministry of Interior). In 1957, the Trust played an active role in constructing the low cost houses while the state governments provided the land on nominal terms, built roads and provided water supply. In 1964, it came under the Ministry of Housing and Local Government. Finally, the Trust was dissolved in 1975, and the low cost housing programme became the responsibility of

the individual state government once again. Up until 1975, the majority of low cost housing schemes in Malaysian cities were developed through the Housing Trust, although several local authorities had initiated their own projects as early as 1955.

3.1 LOW COST HOUSING PROVISION

In the First Malaysian Plan (1966-70) the goals first established with the Housing Trust were re-emphasised. The government involvement was seen as an expansion of the activities of the Housing Trust in the formation of the Ministry of Housing and Local Government (MHLG). The public sector, which is at the same time the regulator, plays a dominant role in the provision of low cost housing in Malaysia.

Since 1970, the government had targeted the number of low cost houses to be constructed by both the public sector and the formal private sector during the various 5 year development programmes. The involvement of the formal private sector, who are mostly the housing developers, in the construction of the low cost houses started during the Second Malaysian Plan (1970-75) where the housing policy clearly stated :

> *"Public housing constitutes a major element of the national housing programme. Basically this programme caters to the needs of the low income groups of all communities, irrespective of race. It is designed to eliminate slum dwellings and squatter living, as well as resolve other socio-economic problems associated with rapid growth of urban centres in the country. The Government will place emphasis on housing for low income groups as such ventures do not appeal to private developers whose activities cater mainly for the middle and higher income groups....."*

The subsequent development plans basically reinforced these goals. Under the current government's privatisation policy, the private sector involvement has been given greater emphasis. Under the Sixth Malaysia Plan (1991-95), provision of housing for the low income group is classified as a social development. The objective of the social policy related to housing development as indicated in the SMP is to provide Malaysians of all income levels, particularly those in the low income group, with access to adequate and affordable shelter. It is also aimed at providing a reasonable standard of living as well as promoting social integration for the multi-racial community in the long run. This is nothing new. Similar emphasis had been highlighted way back

in the Third Malaysia Plan. Even at that time, housing had been regarded as part of the social welfare, a sector whose improvement and growth has been dependent on economic expansion. However, one of the challenges that the government is concerned with is to ensure that the price for a low cost house should not exceed MYR25,000 which the officials considered affordable to the low income group. The government is still keen on continuing the existing strategies that had been carried out during the previous five development programmes which are as follows:-

- *To encourage the construction of more low cost and medium low cost houses especially in the urban areas.*

- *To encourage the provision of more houses for rental with a view to meet the immediate need for the low income workers in the urban areas.*

- *To emphasise the human settlement concept in the planning and development of housing projects. (According to MHLG, under this concept housing development is viewed in the broader context of creating a decent and viable human settlement through the provision of adequate basic infrastructure and social facilities by the developers of housing projects.*

- *To encourage greater participation of the private sector especially in the provision of low cost housing.*

- *To provide houses at subsidised cost and housing loans at subsidised interest rates for the low income group.*

These strategies however, may encourage the low income households to be dependent on an institutionalised supply system of housing, whether it is for sale or for rental and the supply so far has never been adequate.

Table 3.1. Low Cost Housing Provision by Public and Private Sector

	MALAYSIA DEVELOPMENT PLANS					
	2nd MP (1970-75)	*3rd MP (1976-80)*	*4th MP (1981-85)*	*5th MP (1986-90)*	*6th MP (1991-95)*	*7th MP (1996-00)*
Public Sector						
Targeted Units	44,000	73,500	176,500	120,900	24,430	nil
Completed Units	13,244	26,250	117,070	74,332	10,700	-
% Achieved	30	36	66	62	44	-
Private sector *(housing developers or contractors)*						
Targeted Units	81,132	232,690	90,000	374,100	217,000	138,500
Completed Units	64,862	199,490	19,170	90,064	217,000	-
% Achieved	80	86	21	24	100	-

Source: Ministry of Housing & Local Government, Malaysia, 1995.

According to the SMP report, the formal private sector has managed to provide the targeted number of houses while the public sector had to admit failure in achieving its target due to the organisational set-up of the state agencies which do not have the capacity nor the experience to undertake low cost housing projects on such a large scale.

Notwithstanding the above, the MHLG is fully aware of the main objective spelled out in the Global Strategy for Shelter to the year 2000 (GSS), 'facilitating adequate shelter for all' - as adopted by the General Assembly of the United Nations in 1988. UNCHS (Habitat) felt that the urban poor in most developing countries have little access to even the minimum acceptable standards of urban housing and services. In order to combat such a problem, governments are expected to adopt the principle of enabling shelter strategies and to leave the actual provision of housing units to the private sector. In a way MHLG's move to let the private sector undertake the production of the low cost housing units for the 7th MP is a step towards recognising the objectives of the GSS. However, the private sector in the context of Malaysia are not the informal private sector but they are the highly organised housing developers or building contractors with huge capital investment who would be willing to improve their technology in order to speed up the production of these low cost housing units. Clearly the role of the informal private sector as part of the enabling shelter strategies appeared to be minimal or absent in Malaysia. By admitting failure in achieving its target and allowing the private sector to fully undertake the production of the low cost housing units, one wonders whether this is an indication of the beginning of a complete withdrawal on the

part of the public sector in the housing provision for the low income group as raised by Ramirez (1990:217) :

> *"...the most important issues in this field today - one with unforeseeable social and political implications - is not the intervention of the state in housing but the widespread attempt all through the world to withdraw the state from housing provision".*

More and more governments throughout the world are building less public housing and are only involved in providing assistance to the self-help housing sector (Pugh, 1989a: Potter and Salau, 1990). In the United Kingdom, after 1980, powers of local governments to build social housing and the resources allocated for it were greatly reduced, and the production of public sector rental housing fell from 140,000 in 1977 to merely 31,000 in 1992 (Barlow and Duncan, 1994). However, the official thinking in Malaysia is geared towards building more public housing for sale and for rental. This comparison between house-building programmes in the United Kingdom and Malaysia is intentional. Of course there are many dissimilarities, in the context of the individual country's housing policy but the question here is whether Malaysia's current housing strategy is repeating what United Kingdom did about twenty years ago. In the United Kingdom, large financial incentives were offered to those living in local authority's housing to be owner-occupiers. However, these incentives for the owner-occupiers cost the government in the United Kingdom twice as much as the cost of providing housing benefits to low income renters. Although Malaysia is not a social-democratic welfare state like in Western Europe nor is she a liberal welfare state like North America, one hopes that she will be spared the same experience in housing in the future which countries in the North have encountered.[1] Like most shifts in policy, the impact on the low income group is marginally beneficial as the way in which the policy is implemented in Malaysia seems to benefit the highly organised formal rather than the informal sector.

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[1] In social democratic welfare states, there is extensive state intervention to promote equality which includes extensive state intervention in housing, while using market forces to keep down prices and promote diversity in types of housing and forms of housing tenure. Countries which are characterised as social democratic tend to have governments with a much greater role in land supply and a greater emphasis on social housing and restricted profit among the private sectors. For example in Sweden, during the 1980s, more than half of all housing completions were non-profit social housing with 19 per cent of houses for sale and rent; virtually all housing production was funded by the state housing loan system.
In liberal welfare states, the market is favoured over other forms of housing provision with very limited government involvement, generally only in the form of housing provision for the few who lack the means to enter 'the market', or some form of welfare payment to help pay for housing. (An Urbanising World, Global Report on Human Settlements - UNCHS, 1996: 340.

Despite the huge investment, the government is still battling with the apparent problem of having to meet adequately the urgent demand for low cost housing particularly in the urban centres. With the urban centres experiencing a steady growth of the middle income group without a corresponding supply for medium cost houses.[2] The government feels that there is pressure for the private sector to get involved in the supply of these houses too. MHLG officials strongly believe that, by providing medium cost houses, the problem in the adequate supply of low cost houses would be reduced because there was evidence that those from the lower middle income group are 'raiding' the low cost houses which are meant for the low income group. However, looking at the elaborate allocation system (as explained later in the chapter), how is it possible for the lower middle income to 'raid' the low cost housing estates? The possible reason for such occurrences is perhaps due to the locational factor. The government may feel that there is a need for low cost houses to be built in certain locations as part of the political propaganda, but in reality those from the low income group are really not very keen to own such houses as they may have other aspirations, i.e., the education of their children with the hope of achieving upward social mobility in the future. Housing is not always their principal concern. Generally, within the low income groups, the lower the income of the household, the smaller the amount that can be set aside for food and other essentials if they have to settle the housing loan at the same time. As a result of this, in newly developed low cost housing estates, most households from the low income group prefer to rent rather than be owner-occupiers. So, rather than letting the houses being left vacant for an indefinite period of time, the government has allowed those from the lower middle income to purchase several of these low cost housing units. This is particularly true in the case of Yam Phase III and Sri, the two housing estates selected for this study. To the outsider and public at large, this is a classic act of 'raiding' by the lower middle income group but officials do not consider it improper as these residents have strictly followed the laid down bureaucratic procedures when applying. There are times when government officials

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2 Standard price categories for houses in Malaysia. Low cost (MR25,000 and below), Medium cost (MR25,000 - MR50,000). High medium cost (MR50,000 - MR100,000), High cost (above MR100,000).

tend to favour the lower middle income group in terms of allocation of these low cost houses because they are less problematic in terms of repayment of the housing loan. They are most unlikely to default.

It is expected that a quarter of the 800,000 houses targeted to be constructed in the Seventh Malaysia Plan will be medium cost houses with a minimum floor area of 68 square metres against 49 square metres for the low cost houses (New Sunday Times, April 7, 1996). The formal private sector is already in the forefront reciprocating the government's call for more houses to be built. However, the consumer activists and trade unionists are wary of the attempts and promises made by the private sector. They anticipate that the housing developers will build the medium cost houses using the old plans for the low cost housing units but making modifications in terms of the finishes, i.e., ceramic floor tiles instead of cement render, concrete roof tiles instead of corrugated asbestos roofing sheets, and provisions of ceiling for the entire house. The developers will then feel justified in increasing the price of these houses to medium cost but in reality there is no change or improvement in the actual house design and no gain in built up areas. At the same time building materials and components used would be produced from factories of which these developers would be the main shareholders.

3.1.1 The Special Low Cost Housing Programme (SLCHP)

SLCHP was a joint venture undertaken between the State governments and the private developers. The States provided the facilities and the incentives to expedite the development approval and the implementation of the programmes in addition to the less stringent planning standards imposed. It was launched during the Fifth Malaysia Plan (1986 to 1990) and the government was hoping that 240,000 low cost houses would be built during that development period. 60 per cent of these houses were to be built on state land and 40 per cent on private land (Sen, 1986:12). The formal private sector has always been reluctant to set aside private land for low cost housing largely due to cost. It is generally true that, in most of the larger cities in Malaysia, urban housing land is expensive and hence unsuitable for the low cost housing programme. Although it is possible to find land at lower prices in the peripheral areas, the lack of

adequate infrastructure and essential utility services makes such land unsuitable for these programmes.

The programme's main aim was not only to increase the supply of low cost houses but also to generate 2 per cent economic growth per year in response to the economic recession during that time and to provide more employment opportunities so as to reduce the unemployment rate. This was the only period that the public sector managed to outdo the private sector's performance in terms of housing provision (Salleh & Lee, 1996). Sri, which is one of the housing estates selected for this study, was built under this programme.

In 1988, the World Bank was requested to undertake a study of why formal housing costs in Malaysia appeared to be high when compared to the SLCHP. The main reasons that the public sector had managed to keep the housing costs low was because the land for SLCHP was mostly obtained at below market cost, with a subsidy of about MYR8,000 per plot. The infrastructure was about MYR1,450 below the estimated cost, and cement which was the main building material was given a subsidised rate (Malpezzi, 1991).

The resale market is quite active in Malaysia. Without any government intervention, each housing unit for the SLCHP was estimated to cost about MYR28,100 and be worth about MYR30,000. The private developers received substantial subsidies in the cost of land, and reduced infrastructures standards but they still lost money because of regulations and price restrictions. The sale price of MYR25,000 is still controlled by the government.

3.2 THE PRICE OF A LOW COST HOUSE

There is not much difference between the low cost houses built by the public sector and the private sectors in terms of price, house designs, and eligibility of the house buyers. The only major difference is the management system adopted in the implementation, marketing and allocation of the housing units to the successful applicants. Under the Fourth Malaysia Plan, the maximum price of a low cost house is fixed by the government at MYR25,000 purportedly to be affordable for the low income group. This price has been maintained by most state governments

for more than a decade, irrespective of inflation, house designs, built up area, building materials and locations.

Salleh and Lee (1996) revealed that the actual cost per housing unit in the major urban areas in peninsular Malaysia (in this case Kuala Lumpur, Penang and Johor Bahru) is between MYR35,000 and MYR48,000, of which the construction cost forms the major proportion ranging from MYR25,000 to MYR37,000 per unit. Another major cost component is land, ranging from MYR6,000 to MYR9,000 per unit depending on the location of the housing estate. However, an MHLG official report claimed that the fixed price of MYR25,000 covers both the construction and administrative cost but does not include the cost of land which is absorbed by the state governments.

3.2.1 Cross-Subsidy

One of the practical and effective ways to alleviate the problem of the shortage of housing supply is to avoid direct government production of subsidised public housing. The focus should be on infrastructure provision in order to increase housing demand (Renaud, 1987). Since the private sector is fully involved in the production of low cost housing in Malaysia, the public sector will instead concentrate fully on regulatory and administrative matters. As part of the government intervention, the housing developers are required to construct low cost houses which should form at least 30 per cent of their overall housing estates or else their application will not be approved by the local authorities. These low cost houses are again to be sold at a price not exceeding MYR25,000.

The government realises that the profit margin for the low cost houses are far too low. Thus the Federal policy related to housing expects some form of cross-subsidy which then brings the question of who actually has to pay more in order to enable the private sector to recover their losses in the sale of these low cost housing units at MYR25,000 each. Many of the very high cost housing projects are normally exempted from the above 30 per cent requirement because these projects are usually small, quite exclusive and the cost of land is very high. On the other hand, the housing projects for the medium cost and high-medium cost are quite large. Clearly, it is the

buyers of these medium and high-medium cost houses that will be cross-subsidising the low cost units. There is a tendency among the developers to increase the price of these medium cost houses but when the price becomes too high, then the project is no longer viable. Housing developers with not-so-high capital investment tend to reduce the quality of these medium cost houses in order to revolve their limited capital and at the same time try to keep the house price affordable for the intended house buyers. It is thought that, because of these poor quality houses, transformation is becoming a phenomenon not only in the low cost housing estates but also in the medium and high medium housing schemes as part of housing improvement.

The main objective of cross-subsidy as perceived by the government is to encourage housing developers to build low cost housing units and the loss incurred will be covered by the sale of non-low cost houses. However, this will reduce the developers' profit margin and they would prefer to concentrate on building upper middle cost housing instead. Once these particular housing markets has been met and sufficient profit have been made, perhaps then they would take up the challenge of producing the lower medium cost housing. Meanwhile, fewer lower medium cost houses are being built by the private sector and house buyers that could afford the medium cost are now raiding the low cost houses and transforming them as soon as they move in. Whatever house types are being built, it can be argued that the cross-subsidy tends to be counter-productive.

In recognising these problems, the government claimed that incentives have been provided which are aimed at reducing the overhead costs of the developer in the form of 'government subsidy'. Apart from the subsidies already mentioned, some of the major incentives are waivers from fees and contributions to government agencies, waivers from certain requirements in the Uniform Building By-Laws (UBBL) (1984), speedy approvals for the planning and building applications from the local authorities, and permits to increase the residential density of the proposed housing estates by building flats and apartments.

3.3 ELIGIBILITY FOR A LOW COST HOUSE

To be eligible for a low cost house, the total annual household income shall not be more than MYR9,000. This income threshold came into effect in 1982. Those with an annual income between MYR3,600 and MYR6,000 are advised to opt for other housing programmes such as the sites and services.[3] For the Special Low Cost Housing Programme (SLCHP) 1986-1988, similar priority was given to those with an annual income of MYR9,000 or below. However, there were requests to waive this particular condition for cases where the authority's aim was to speed up the sale of these houses thus enabling those earning MYR18,000 or less to be eligible to apply even for the low cost houses. The criteria used in selecting the eligible applicants for low cost houses were as follows:-

- *must be above 21 years of age regardless of gender;*
- *must be married with a family;*
- *must be a resident of the area where the low-cost houses were built;*
- *must not own any housing properties elsewhere.*

3.4 PAYMENT SCHEDULE OF LOW COST HOUSES

At present, all low cost houses are sold by the state governments to the house buyers on a hire-purchase arrangement. Under this arrangement, the state government borrows from the Federal government to build the low cost houses and repays these loans through receipt of monthly instalments paid by the house buyers. The state government will impose an interest rate of 5.5% per annum for the loan that was offered to the house buyers.

3.5 HOUSING FINANCE/ LOAN FACILITIES

Next to land, housing finance is perhaps the most important factor in housing production. The extent to which housing finance is available, the terms under which it is available and the proportion of the population that can obtain it is a major influence not only on housing but the

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3 The main characteristic of the Sites and Services project is the provision of 240 square metre plot complete with a core house which can be extended as and when the need arises. The price per plot is fixed at not more than MYR10,000 and applicants for such schemes are provided with an interest-free loan by the Federal government.

economic growth of the country. However, the biggest problem facing those with low income is that they are frequently denied these housing loans because of the mode of operation set out by the financial institutions. For example, the lending institutions require that borrowers have a stable source of income out of which interest on loans can be paid at regular intervals according to the agreed terms, whereas these low income households are generally self-employed or working with the informal sector and their income is usually irregular. Most financial institutions will not take the risk of providing the loans to these households. So the government sets up specialised lending institutions to allow low income households to borrow at subsidised rates. There are various housing loan facilities available for the intended house buyers and their interest rates vary. Among the facilities available are as follows:-

3.5.1 Government Loan for Public Low Cost Housing

For low cost housing units which are sold directly to the buyers, the repayment period is 25 years and the maximum interest rate is 5.5 per cent per annum. For low cost units that are under the 'rent-to-purchase scheme', the tenant is given the option to buy after 10 years. The previous rent paid will be taken as part of the down payment and the balance is payable within a period of 15 years with the interest rate of 8.5 per cent per annum.

3.5.2 Housing Loan for Government Employees

The amount of loan approved will depend on the total annual income. The interest rate is 4 per cent with the maximum repayment period of 25 years.

3.5.3 Special Housing Loan for The Low Income Group

A maximum loan of up to MYR7,500 at 5.5 per cent is made available for rural dwellers who own land on which to build their own house. Total cost of construction must not exceed MYR20,000.

3.5.4 Employment Provident Fund (EPF)

A portion of the EPF contribution is allowed to be withdrawn for the purpose of buying a house with priority given to those who are buying the low cost houses. The remaining cost of the house

will be covered by the loan from the bank which will impose a repayment period of up to 30 years. The amount of loan given will depend on individual's total income and repayment capacity.

3.6 MODULAR CO-ORDINATION

In 1972, the government decided to replace the existing imperial system of weights and measures to metric. The change to metric was difficult due to the complexity and fragmentary nature of the construction industry itself. The modular co-ordination was approved and introduced in 1986. The introduction of modular co-ordination was meant to provide a basis on which to co-ordinate all dimensions towards complete metrication in building plans, construction details, and the manufacturing of building materials and components. The idea was to rationalise the industrialisation of the construction industry. The established building companies were able to adopt this approach but for the small and medium industries this proved to be costly initially.

Despite the encouragement from the government for the above, professionals even in government departments, have not fully applied the modular co-ordination in their house designs. The excuse has always been that most manufacturers are still trying to get rid of the old stock of the building materials. In the end all was forgotten, and the designs for the low cost housing projects are not based on the modular co-ordinations. In fact officials are more concerned with the provision of minimum area for these designs. The complexity of the modular co-ordination was simply too much for the low cost housing team.

3.7 HOUSE DESIGNS AND HOUSE TYPES

The two main features used in describing the low cost housing units are the built-up area and the number of bedrooms provided. The number of people it can house is not used. Most of the designs have two or three bedrooms, a living cum dining area, a kitchen, a toilet and a bathroom. The houses may consist of low rise and high rise flats, terraced houses or even detached houses. The total built-up area is approximately 42 to 46 square metres and this is considered as the minimum acceptable level by the authorities as stipulated in the UBBL, 1984, but this level may not be socially accepted by the owner-occupiers who have large households. More than 60 per

cent of the residents in low cost housing estates in Peninsular Malaysia have a household size ranging from 5 to 12 persons (MHLG, 1993). Given the built-up area of existing low cost housing unit, this means that those with large households would have an average about 9 square metres per person. A typical low cost housing unit has only 2 bedrooms so, in large households, it is quite common for members of household to turn the living room into sleeping areas.

In the mid 1980s, the National Housing Department (NHD) was known to be working on a new housing design with the objective of improving the quality of low cost housing and at the same time trying to maintain the standard price of MYR25,000. The new plot size for the single storey, low cost housing is 5 metres by 17 metres (85 square metres) while for the double storey it is 4 metres by 16 metres (64 square metres). Both house types are required to have a set back of 2.3 metres from a pedestrianised road or 4.5 metres if facing a vehicular road. The built up area for the new design is 41 square metres which is 1 square metre less than the areas for the house types in the three housing estates surveyed. In 1986 the NHD identified the three-bedroom design as a better alternative as it meets some of the social and cultural preferences and all state governments were encouraged to adopt this layout. In Yam Phase III, one of the housing estates for this study, this three-bedroom design was adopted.

3.7.1 Low Rise Terraces (Ara and Yam)

This house type was widely used in both public and private sector low cost housing projects in the 1960s and 1970s. Under the Third Malaysia Plan, 70 per cent of the units constructed for the low cost housing programme were low rise terraces with two bedrooms. The construction consists of a light reinforced concrete frame with brickwork or blockwork infill walls. The house has a concrete floor finished with cement render and the roofing materials are mainly asbestos cement corrugated roof sheets with the timber roof structure exposed on the underside. Discussions with officials from the NHD indicated that most of their recent housing projects (Yam III included) have used concrete roof tiles instead of the asbestos cement roof sheets and certain parts of the external walls consist of facing bricks instead of the plain plastered wall. The use of these new building materials is impressive externally and officials pride on the high quality finish provided for

these low cost houses. However, residents of these housing estates would prefer an increase in the floor area instead of the change in the external finish of the house.

In Yam Phase I and II, the two-bedroom terraced house has separate toilet and bathroom which are located in the backyard. Access to these facilities is visible to immediate neighbours. In front of the bathroom and toilet, there is a wash area with cement flooring. The internal layout shows the kitchen separated from the living-cum-dining area by a wall. The house is 6 metres wide and 9 metres long (54 square metres). The floor finishes are cement render, the walls are hollow blocks with cement plaster, and the roof is of asbestos cement corrugated sheets.

The double storey low cost terraces included in this study are the two-bedroom house in Ara where each housing plot is 4 metres wide and 18.7 metres deep (74.8 square metres). The building itself is 6.8 metres deep. The ground floor consists of a living area separated by a wall from the kitchen-cum-dining area. The bathroom-cum-toilet is located within the kitchen area. Precast concrete panels are used for the external walls and the floor is finished with cement render. On the upper floor, the two bedrooms are separated by a timber partition and the floor is of precast concrete slabs. Turner (1976:15) whose housing ideology is highly associated with 'autonomy', has never agreed with this sort of prefabricated building system which he classified as 'most uneconomic, socially dysfunctional and materially unstable construction ever devised'. He described this housing image as a 'destructive mirage' which eventually will fade as the owner-occupier transformed the hideous image of public sector housing into something more personalised and socially acceptable.

3.7.2 Detached Timber House (Sri)

These are two bedroom, single storey, detached timber buildings raised 2 metres off the ground, with a built up area of 42 square metres. The main part of the house is raised with timber staircase leading down into the floor level kitchen and dining area. The bathroom is separated from the toilet and is located on one end of the kitchen. The roofing is asbestos cement sheets and the walls are of timber cladding except for the kitchen where the walls are hollow blocks with cement plastering up to a height of 900mm from the finished floor level and the rest is made up of

timber cladding. The floor finish for the kitchen is of cement render while the living area and the bedrooms have timber boards for the floor.

This house type was mainly used for the SLCHP. The detached timber house design is used mainly to promote a wider utilisation of timber in the housing industry and to develop the market for it. No doubt the building construction industry in Malaysia is the largest consumer of local timber but its commercial use is limited in the forming of prefabricated roof trusses, rafters, doors and window frames, and formwork for the concrete structures.[4] Housing developers involved in the SLCHP were encouraged to adopt the prefabricated system in their housing production and it was generally agreed that the timber prefabricated system is much cheaper than the concrete prefabricated system. The construction time is considerably reduced as the major activity on site is merely assembling all these prefabricated panels which are mass produced in the factories. The breakdown in terms of cost for a 55 square metres and 59 square metres timber house are as follows:-

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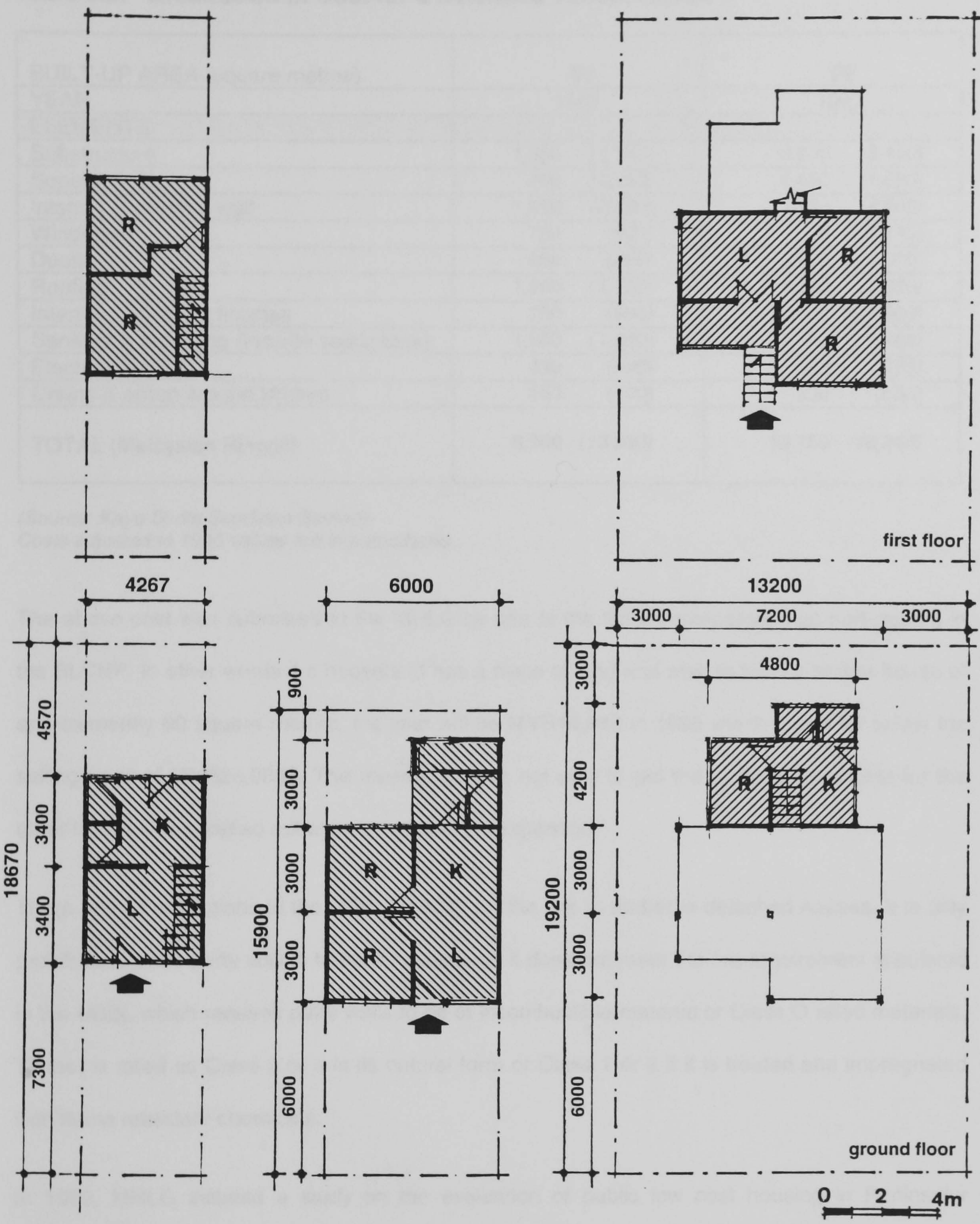
4 The sawn timber industry in Malaysia has been an export-oriented industry. Total exports of sawn timber from Malaysia have consistently accounted over 50 per cent of total industry turnover. Domestic demand has risen since 1987 by about 11.7 per cent annually to 4.14 million m^3 in 1992 but fell by 2.5 per cent to 4.04 million m^3 in 1993. About 60 per cent of the demand for sawn timber generated by the domestic market came from the construction industry in 1993 (Source: Ministry of Domestic Trade & Consumer Affairs, 1995).



ARA
Double Storey
Terrace
Plot Size: (4267 x 18670)

YAM
Single Storey
Terrace
Plot Size: (6000 x 15900)

SRI
Timber House on
Individual Plot
Plot Size: (13200 X 19200)

Figure 3.1 Original Floor Plans

Table 3.2. Breakdown In Cost for a Detached Timber House

BUILT-UP AREA (square metres)	55	59
YEAR	1987	1987
ELEMENTS		
Substructure	1,350 *(1,780)*	2,600 *(3,430)*
Superstructure	950 *(1,250)*	1,400 *(1,850)*
Internal & external wall	1,950 *(2,580)*	2,150 *(2,840)*
Windows	700 *(920)*	900 *(1,190)*
Doors	650 *(860)*	700 *(920)*
Roofing	1,300 *(1,720)*	1,500 *(1,980)*
Internal & external finishes	750 *(990)*	800 *(1,060)*
Sanitary & plumbing (include septic tank)	1,500 *(1,980)*	1,500 *(1,980)*
Electrical wiring	450 *(600)*	620 *(820)*
Drains & apron around kitchen	300 *(400)*	500 *(660)*
TOTAL (Malaysian Ringgit)	9,900 *(13,080)*	12,750 *(16,840)*

(Source: Kayu Sedia Sendirian Berhad)
Costs adjusted to 1995 values are in parenthesis.

The above cost was submitted to the MHLG by one of the timber companies that participated in the SLCHP. In other words if a household has a piece of land and wish to build a timber house of approximately 60 square metres, the cost will be MYR16,840 in 1995 which is still far below the selling price of MYR25,0000. The researcher was not able to get the breakdown of cost for the other house types and so not able to make any comparison.

There are no restrictions in the UBBL, (1984), on the use of timber in detached houses. It is only prohibited for the party wall in terraced houses as it does not meet the fire requirement stipulated in the UBBL which requires party walls to be of incombustible material or Class O rated materials. Timber is rated as Class 3 or 4 in its natural form or Class 1 or 2 if it is treated and impregnated with flame retardant chemicals.

In 1992, MHLG initiated a study on the evaluation of public low cost housing in Peninsular Malaysia and the report was prepared by *RMA-Perunding Bersatu Sendirian Berhad* as mentioned in Chapter One. The four states selected for the study was Selangor, Johore, Pahang and Negeri Sembilan and their sample size was 1500 households. The objectives of MHLG's study are as follows:-

- *to evaluate and assess the satisfaction level of residents living in low cost housing, and to compare their level of satisfaction in terms of urban and rural distribution as well as by house types*

- *to assess the design of existing low cost housing in order to determine their suitability in line with residents' preferences*

- *to assess the extent in which low cost housing has achieved its aim in providing shelter to those earning an annual income of MYR9,000 and below*

- *to assess the existing delivery system of low cost housing by the state governments*

The above study was focused mainly on the PLCHP. The SLCHP was not included because it was a joint venture project between the public and the formal private sector. At the time of the above study, MHLG was mainly concerned about the performance of the public sector in the provision of low cost housing to the target group. However, the house types in the study consist of single and double storey, terraced houses, detached houses and high rise flats. On the whole, their results indicated that the residents were satisfied with all the house types and their living conditions. Only 25 per cent of the respondents indicated that they were dissatisfied with the size of the kitchen and the overall maintenance of the housing estates. In their analysis of household income distribution for the four states, the mean household income was higher than the targeted annual income of MYR9,000.

In terms of the delivery system, one of the difficulties faced by the state governments is the availability of suitable sites for the PLCHP. Competition for state land is common and very often priority is given to industrial and commercial use because the economic returns are higher and profitable.

Table 3.3. - Preferred Improvements to Low Cost Houses

	SELANGOR n=291	*RURAL n=206*	*URBAN n=85*
Types of desired renovations	*%*	*%*	*%*
Kitchen to be extended	57.0	62.1	44.7
Others	20.3	17.5	27.1
Living room to be extended	12.0	9.7	17.6
Bedrooms to be extended	4.8	4.4	5.9
Not sure	3.8	3.4	4.7
No renovations	1.4	1.9	-
Separation of bathroom & toilet	0.7	1.0	-
TOTAL	*100.0*	*100.0*	*100.0*

Source: Ministry of Housing & Local Government - Evaluation Study of Public Low Cost Housing in Peninsular Malaysia, July 1993.

In the MHLG's survey, the respondents were asked what sort of improvement they would like to have bearing in mind that the existing built-up area had to remain the same. Fifty-seven per cent wanted their kitchen extended and 12 per cent preferred a larger living room. Twenty per cent preferred other changes to their houses, i.e., redesign the overall layout, an extra bedroom and a bigger bathroom. Since there is to be no increase in the existing built-up area, it is presumed that the respondents are willing to sacrifice certain areas in order to have a larger kitchen or a larger living room. Clearly, the authority is hoping to modify the existing house design but at the same time maintaining the original built-up area. Should the household need an extra space then they will have to bear the extra cost. The 1993 study merely suggests a house design that is flexible, that allows a household to extend by using available building plans when the need for a larger kitchen or an extra room arises. However, there is no concrete solution for the so-called flexible design in the 1993 study as it is not within their scope of research.

Among the three housing estates surveyed by the researcher, the Sri housing estate has the potential of being flexible since the house type is a single unit on an individual large plot. It would be very difficult to achieve flexibility in Ara and Yam because of the constricted plots except for those on the end plots.

3.8 THE HOUSING ALLOCATION PROCESS IN THE STATE OF SELANGOR

The Housing Department is responsible for the overall co-ordination, i.e., monitoring and supervising the development of PLCHP, in each state in Peninsular Malaysia, and the same system applies in the state of Selangor. The department is also involved in selecting the eligible house-owners and collecting the monthly repayment of the housing loan from them for a period of 25 years. Repayment can be made through the district office where the Housing Department will collect and remit the amount collected to the MHLG via the State Finance Department.

The allocation process starts with the distribution of the standard application forms by the Housing Department when the construction of a particular PLCHP is approximately 10 per cent completed. These forms, which are available from the Housing Department and at the District Office for only a week, have to be completed and returned to the issuing office within a month. However, this period may vary from project to project. The criteria used in selecting the eligible applicant for low cost houses were based on those set by the MHLG. The major criteria are household annual income (which should be not more than MYR9,000 per household for PLCHP), citizenship, age, and marital status. Priority is given to applicants for whom one of the couple is a Selangor citizen and is staying near to the proposed project. If the applicant is not a Selangor citizen, consideration will be given if one of the parents is a Selangor citizen and those who are not born in Selangor but have stayed in the state for more than ten years will also be considered. In the case of a squatter rehousing project, like Ara, the requirement on Selangor citizenship is waived. The allocation will also follow the New Economic Policy's guideline on *Bumiputera*[5] for whom the quota will be decided by the State Executive Committee (State EXCO).

A minimum of 30 per cent of all types of housing units built are to be set aside for *Bumiputera* house buyers in each project and these units are expected to be held by the housing developers for *Bumiputera* buyers for a minimum period of six months from the date on which the houses are offered for sale. At the end of the six months period, unsold units may be sold to *non-Bumiputera* upon receipt in writing of approval from the state governments. In practice it takes between six

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5 Bumiputera literally means 'son of the earth'. This comprise of the ethnic Malays and other indigeneous groups in the country.

and eighteen months for the developer to receive clearance for the release of the housing units to other *non-Bumiputera* buyers.

The aim here is not to question the objectives and the need of the policy but the manner in which it is implemented. The implementation poses difficulties to the housing developers. They would prefer the holding period for *Bumiputera* units to be reduced from six months to three months but the government felt that the original time frame proposed ought to be retained. The housing developers also suggested that units for *Bumiputera* which are still unsold after the holding period should be purchased by a housing agency nominated by the government. These units can then be offered for rental until eligible house buyers come along. In this manner, the low cost housing projects are expected to remain viable and the policy on ownership can be fulfilled. The point that the housing developers would like to see is that these units set aside for the *Bumiputera* house buyers be sold in the shortest possible time. They cannot afford to sit and wait for a sale for six months. These were the views from the developers side.

However, the respondents who are the house buyers have a different story on the above matter. According to those interviewed in Yam, most of the residents in the new phase are not within the eligible income limit of MYR9,000. It seems that when the *Bumiputera* came to enquire about the sale of the house during the six months period, they were informed that almost all the units for *Bumiputera* have already been sold out. The housing developer, on the other hand had their version of the story. They had difficulties in selling those units that were allocated for the *Bumiputera* and the unsold units were then taken over by one of the leading building societies in the country, i.e., the MBBS, who eventually sold them to outsiders who happened to be from the lower middle income group. The waiting game between six to eighteen months seems worthwhile to the developer concerned because they probably managed to minimise the loss in terms of sale of these houses to outsiders who probably are not those from the target group and have no difficulty in paying for these houses even in cash.

The use of household annual income as a criterion in the allocation process can be very misleading particularly if it is not properly monitored. It may appear to be deemed necessary for

the government agency officials and administrators from the Housing Department at the State and Development Unit to know the level of income among the applicants so as to match the price of the low cost house with the household income. In reality, the state authority does not know the true level of applicant's household income with certainty. Generally, it is to the applicants' advantage to understate their total formal income and they are not obliged to reveal other sources of income. In this way, a household stands a better chance of being allocated a low cost housing unit, supposedly reserved for the 'real' lower income groups, which is usually priced below actual market value. It is easy for applicants to conceal various sources of income such as earnings by other members of the household, business profits, earnings from rentals, etc. In the process of going through all the application forms, government agency officials normally take the easy way out of merely checking the official, monthly, statement of the applicant's principal earnings, thus missing out the considerable amount of other income accrued. Not only that, bias in housing allocation for higher income groups happens as government officials have the tendency to believe that efficiency of cost recovery can be more easily achieved from this group rather than the 'genuine' low income group (Abdullah, 1995).

However, those who are genuinely within the qualifying income limits but are self-employed have the problem of not being able to show a statement indicating a regular income, when applying for the housing units. The chances of their applications being processed can be pretty slim as officers are more concerned with the ability of the applicants to repay the housing loan. Tym (1984) pointed out that, because of a basic lack of economic resources, the target group always find difficulty in entering the formal housing market.[6] Without the statement of a regular income, this can prove to be a tricky case to handle particularly when the discretionary power of the officer concerned would be required and at times could be abused. This has adverse effects on those households who are within the qualifying income limit and are able to repay their housing loan because they are being excluded. In short, using income as a criterion in the allocation process

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6 The formal housing market, for rent or for sale, is that market in which housing is available at acceptable space, environmental and health standards; which has full title, and which has an adequate provision of infrastructure (Tym 1994:210).

can result in the exclusion of low income households from the low cost housing units, and the inclusion of households who should be excluded.

All applicants are processed by computers at the Housing Department based on the above mentioned criteria and a list of the successful applicants is prepared which forms allocations for two-thirds of the available housing units in a particular housing scheme. The department usually finalises its interviews and selection of applicants for the two-thirds of the housing units when the project is about 70 per cent completed. The remaining one-third of the applicants will be considered by the committee at the District level chaired by the District Officer and whose committee members comprise local political representatives. Unfortunately, the District committee are unable to meet on a regular basis due to the politicians' other commitments. Thus the remaining list of one-third of the applicants is often delayed. Even when the project is completed, the lists from the Districts are often not available for the State EXCO to endorse. As a result of this, the completed houses may remain vacant for several months or even years pending final approval for the successful applicants.

The majority of the respondents agreed with the present system of allocating the low-cost houses to the low-income group. The researcher anticipated that the non-transformers who are at the same time owner-occupiers would agree less with the allocation system. They had not made any changes to their houses, possibly indicating that they could not afford the cost of transformation and that they were genuinely from the low income group. On the other hand, those who transformed might have incomes well above the requirement dictated by the government and these low cost houses should not have been sold to them in the first place. On the contrary, however, it is the transformers who disagreed and felt that, during the process of allocating these houses, priority had been given to those who had political connections or work with the government but there was no mention of those with higher income 'raiding' the housing estates.

However, four heads of households interviewed (two in Ara, one in Yam and one in Sri) confessed that they did not need to follow the normal procedures of applying for the houses. In recognition of their active participation at the local branch of the ruling political party, i.e., UMNO

and MCA, these houses were awarded to them although their annual total incomes do not fall within the qualifying bracket of MYR9,000. Three of them have extensively transformed their houses but one has remained a non-transformer for the simple reason that he does not want to attract attention among the neighbours by transforming his house. Undoubtedly, these four respondents fully supported the present government's low cost housing programmes as they had no reasons not to.

3.9 SUMMARY

To bring this chapter to a close, some general points of the policy relating to housing supply, needs to be emphasised. Malaysia's policy relating to housing has been built up on an *ad hoc* basis from decisions accumulated over a long period of time. Several policies have been piled on top of each other, with matters concerned with housing moving from one Ministry to another. The government recognises the major shortcomings which appear to be of economic, social or political importance. Housing programmes are flooded with a combination of all sorts of actors, i.e., politicians, reformers, social workers, engineers, planners, architects and building economists. The review reveals an exhaustive effort by the public sector in the supply of houses for the low income group ever since the 1950s. Contemporary low cost housing programmes have precedents reaching back over more than four decades. So do the unresolved issues in the design and execution of these housing programmes.

Costs have always cast a long shadow over policy related to housing. Among the reasons are not only fiscal constraints on governments and the demand for social services but also long-run advances in housing standards. Upward adjustment or the enforcement of minimum standards result in higher costs and low-income households are least able to afford them, so they have to be absorbed in the form of government subsidies. The recent efforts of privatising the low cost housing programme is the government's current thinking in recognising the objective of the GSS which is facilitating adequate shelter for all. Whether these efforts will be more effective than similar attempts in housing provision by the public sector remains to be seen.

The next chapter focuses on the research methodology. It provides the information on the approach that have been used in gathering the information and the analysis applied.

CHAPTER 4

CHAPTER 4

RESEARCH METHODOLOGY

4.0 INTRODUCTION

This chapter describes the methodological approach adopted for this study. It sets out to explain the definitional framework for the study and proceeds to the analyses of the data collected. The review and discussion put forward in the previous chapter illustrated that the transformation activity is useful in the increase of housing supply of many developing countries. It was stressed that transformation plays an important role in determining the characteristics and dynamism of the housing economy. This research is designed to explain the importance of the transformation phenomenon. A survey was carried out from December 1994 to May 1995 to provide the socio-economic data that form the basis of the study on the transformation process.

4.1 DEFINITIONAL FRAMEWORK

In order to clarify the exact field of intended study, the following definitions are needed.

4.1.1 Owner-Occupier's Initiatives

As discussed in Chapter Two, several studies of transformation in government-built housing in Israel (Oxman & Carmon, 1986), India (Dasgupta, 1990) and Egypt (Kardash & Wilkinson, 1991), used the term "user-initiated". For this study, the researcher will use the term "owner-occupier" instead of the word "user". Based on the official reports from the MHLG, most of the residents in the PLCHP in Malaysia are owner-occupiers and they are likely to alter or extend their houses because somehow they feel that they have gained control over their housing even if they had not fully paid their housing loan. The term "user" is inappropriate in this context because this will include the renters who certainly do not extend the house that they do not own, let alone initiating the transformation activities. The owner-occupier's initiatives are taken to include decisions and a range of activities which they engage in when transforming their low cost housing units.

4.1.2 Eligible Dwellings

For this study, only the contractor-built housing projects consisting of single-storey terraces, single-storey individual units, and the two-storey terraces, sometimes referred to as 'public low cost housing units' are selected. These houses are originally designed and built in estates as finished products and no alterations or extensions are allowed unless with the approval from the local authority. Houses which have been built with the intention of being altered or extended, particularly those forms of 'core houses' for the sites and services schemes, and rural housing projects are, therefore, not included in this study.

4.1.3 Transformations

The range of transformation work in the areas near to Kuala Lumpur consists of an owner carrying out his own construction or engaging a small-scale contractor or the help of local bricklayers, floor tilers, carpenters, etc., to produce the design and carry out the construction. Characteristically, a low cost housing unit is considered transformed when the construction activities involving the structure result in a gain of covered space or built up area for habitable use by the households.

However, if the original house has been completely demolished and a new one has been built to replace it, this would also be counted as transformation. Since there are only two such cases in this study, the researcher decided not to include them as these two would skew the final analysis.

Finally, there is an essential difference between an owner-occupier initiated, self-help style of transformation and a do-it-yourself transformation. In the case of owner-occupier initiated transformations, the owner accepts the responsibilities of a general contractor for the transformation to be completed, i.e., he decides the final form of the transformed house, the materials to be used and the construction process to be employed. In the do-it-yourself transformation, the major decisions are made by the manufacturers and the final transformed house is actually the assembling of the various building components (Bogdon, 1992). Do-it-yourself transformation is not a major phenomenon in Malaysia because do-it-yourself items or

components are rare and not so readily available in the market, let alone for the low income group.

It is quite normal for the transformation process in each housing unit to be carried out in several different phases, depending on the nature and time frame required to complete each construction activity. A single transformation process could consist of the alterations and extensions, or additions of a single room or several rooms and these operations have to be done in one continuous process without any major break in time. Should such a break occur, and the next construction involve a completely new set of contracts, then this would be classified as another phase of transformation.

4.2 THE MAJOR ISSUES OF THE RESEARCH

The research questions discussed in Chapter One regarding factors affecting the transformation will be examined as the core focus of this research. In relation to this, it is relevant at this stage to state the major issues before a description of sampling techniques of the research study is presented. The previous chapter has outlined the major reasons for investigating the types of transformations and their implications on the households.

Issues may be posed suggesting that most households living in the low cost housing estates prefer not to flout the building laws and regulations but are forced to transform their houses largely due to the restrictive nature of the housing condition. The issues which underline this study are as follows:-

- Transformation is a process which enables owner-occupiers to meet the developmental needs of their household in accordance with their socio-economic circumstances.
- Transformation in the form of housing improvement increases the occupants' degree of satisfaction with the housing units and thus the reluctance to move out from the original locality.
- Transformation is taking place as a result of shortages in particular types of housing and is likely to continue and increase in momentum.

4.3 THE RESEARCH TECHNIQUE

Generally, three research techniques are adopted in the study. The first and most significant source of information is the structured-interview based on a questionnaire. The questionnaire used (see Appendix I) was first designed at the Centre of Architectural Research and Development Overseas (CARDO), University of Newcastle upon Tyne, to gather specific information on the socio-economic characteristics of the households, the housing characteristics and the process of transformation in four developing countries; Egypt, Ghana, Zimbabwe and Bangladesh; under ODA Research Scheme No R4865A. This questionnaire was used in order to maintain comparability with that study.

The second is the interviews with the households and government officials at the Ministry of Housing and Local Government, National Housing Department and the two Local Authorities, i.e., Petaling District Council and the Hulu Selangor District Council. General issues about the government policy on low cost housing in relation to the alterations and extensions carried out by the owners were also discussed. Information gathered through this research technique was used to clarify and confirm information gathered from the written sources.

Lastly, the study draws on written sources or secondary data. Selected published and unpublished reports, articles, technical papers and brochures produced by the numerous government departments and agencies were collected to provide information on the development of the public sector low cost housing provision.

4.3.1 Access to Research Areas and Sampling Frame

Owner-occupier transformation was a vague topic in Malaysia at the outset of this study. There was no literature on the subject, the scale of the activity was not known, and the character of the households involved were undefined. Due to the lack of comprehensive information on the number of alterations and extensions carried out by the households in the low cost houses in the nearby areas of Kuala Lumpur, a few preliminary steps were undertaken before the actual sampling survey could be determined. At the beginning, a general survey of various government

departments was made for any records, documents and information relating to public low cost housing projects in the study areas. This helped to avoid the inclusion of other forms of low cost housing projects in the sample, i.e., the sites and services projects, and the low cost flats (medium and high rise). The standard form of alteration works carried out in the low cost flats were mainly the installation of iron grilles for security purposes, followed by changes in floor finishes which did not affect the original layout. These constitute minor alterations and were not counted as transformation. Housing estates in the rural areas are also not within the scope of this study.

The single and double storey terraced and individual houses, located in urban areas were given paramount attention. The identification of the housing estates in the study areas were drawn mainly from three sources. The first was contact with several government officers from the MHLG through which records of low cost housing projects near the city of Kuala Lumpur were noted. This was necessary to get to know which housing projects were undertaken solely by the government and those projects that were implemented on a joint-venture basis between the government and the private sector. Throughout this contact, lists of previous research by the government on low cost housing projects were also noted. The two research works that proved to be useful for the study of transformation were i) *A Study of Demand and Supply of Building Materials* (January 1995) and ii) *An Evaluation Study on Public Low Cost Housing in Peninsular Malaysia* (July 1993).

Secondly, information on the low cost housing projects was drawn from the Selangor State Development Corporation (SSDC) who were also involved in low cost housing estates in addition to their carrying out commercial, industrial, and infrastructure development projects in the urban areas in the state of Selangor. The low cost houses built by SSDC are normally located in mixed development projects where these houses are cross-subsidised from the sale of medium and high priced houses. These housing projects are mainly funded either under their own funds or funds borrowed from financial institutions.

The experience of compiling the lists of extensions and alteration works in the study areas was not a simple one. There was no comprehensive source where the lists of all extensions on low cost housing could be obtained in contrast to the Zimbabwe sample in Tipple (1997) where planning application records were used. There was certainly no published list or any compilation of these lists even at the local authorities concerned i.e. Petaling District Council and Hulu Selangor District Council. The selected housing projects for this research are under the jurisdiction of the above two district councils. Very few of the households from the low cost housing estates had actually applied for building permission to carry out extension works on their houses and these could only be ascertained after checking several files at the above local authorities.

The choice of the locations for the research was determined by two main factors. Firstly, the location had to be outside the city of Kuala Lumpur but within the state of Selangor. This is simply because KL has been intensively researched and the housing estates in the city are too large for the researcher to handle within the imposed time frame. Secondly, the setting had to be urban. The state of Selangor has quite a number of estates to choose from and their locations are within the acceptable travelling distance for the researcher and her assistants to make the frequent visits during the survey. The classification of the sampling frame into urban projects was based on the spatial distribution of the housing estates and their distances (between 10 to 15 kilometres) from the nearest town as listed by the MHLG. Beyond this limit the estates were classified as rural.

4.3.2 Windshield Survey

One of the aims of this study is to get to know who participated in the transformation process and how much of the housing estates have been transformed. Armed with copies of layout plans (scale 1:500) obtained from various government departments, a windshield survey was conducted on the 3 selected housing estates so as to enable the researcher to record the number of houses that had been transformed out of the total number of low cost housing units built by the authorities. Houses that had been altered or extended and resulted in a gain of space for habitable use were marked as 'transformers' while those that still remained in their original state

of design, or where the extensions carried out appeared to be of temporary nature, and showed no indications of acceptable gain in habitable space, were classified as 'non-transformers'. From the windshield survey it was possible to identify how many houses were physically transformed in each housing estate by studying and noting the altered external facades. However, who exactly participated in the actual transformation process and what were the changes made in the internal layout could only be ascertained from the interviews.

At the end of each windshield survey, the researcher made a courtesy call at the headman's (representative of the residents in the housing estate) house who, by this time, would have received the researcher's letter of introduction; and the researcher would have identified the houses that would be surveyed. The letter was issued by the Deputy Secretary General to the MHLG explaining the nature of the survey and requesting co-operation. "Courtesy is an important and pervasive value" (Bulmer & Warwick, 1993:253). As it is, the Asian system of personal introductions cannot be ignored in conducting a survey. The main objective of the call was to establish a rapport between the headman and the researcher and to give an indication when the actual survey would be carried out in his area. With the help of the headman as the 'middleman', the researcher was assured that the respondents would co-operate under normal circumstances and would be less hesitant in giving their views and opinions on sensitive issues.

To avoid the possibility of the transformers being under-represented, the stratified random sampling method was applied (de Vaus, 1990). For this method, two relevant stratifying variables were selected, i.e., transformers and non-transformers. During the windshield survey, lists of the total numbers of transformers and non-transformers in each housing estate were prepared and every house was numbered individually. The percentage of transformers in Ara, Yam and Sri is 50%, 43% and 32% respectively (see Table 5.1 for breakdown of sample). These numbers were later randomly picked for the required sample size for the two groups which were determined from the above-mentioned lists. Since the focus of the study was on transformation, much of the information gathered had to be from those who had transformed rather than those who had not.

4.3.3 Questionnaire Contents

The set of questionnaires used by the CARDO team were applicable to Malaysia with a few adaptations. Similar to the study carried out in Egypt (Tipple, 1991), the question on cost of rebuilding the property if it was accidentally destroyed was rephrased. The Chinese and Indians in Malaysia, who are highly superstitious, would be offended if required to contemplate such a calamity. The mere thought of such a happening, let alone to mention it openly, would be considered insensitive on the part of the researcher. Thus the question was reworded as follows:- "how much would it cost you to rebuild exactly the same house inclusive of extensions that have been made?"

A question on the age of both the eldest and youngest child in the household was included so as to determine the stage of the household in the household cycle, i.e., whether they are single people, newly married couple with no children, young married couple with dependent children, older married couple with dependent children, or older couple with no children. The last is very rare in the case of Malaysia due to the extended family system. These different stages in the household life cycle are believed to be related to the important changes in the purchasing behaviour of the household. The life cycle concept as an independent variable had been used to analyse survey data in place of chronological age for marketing research as well as in sociological studies (Wells & Gubar, 1966). Similarly, the transformation activities within each household may be related to these different stages in the household life cycle and this would be looked into during the data analysis.

The question on how many rooms did the household occupy appears quite straightforward but the answers given could be misleading. In *Bahasa Malaysia* the word for room is *'bilik'*. In a low cost house design there was no room designated specifically for living or dining. The usual way to identify such spaces locally was the 'living cum dining area' which normally led to the kitchen *(dapur)*. Since there was no interconnecting door between the living room, dining room and kitchen it is not locally correct to categorise this particular area as one room, or two or three (see Chapter Six for definition of habitable space). For the respondents, the word *'bilik'* generally implies a bedroom or any room with a door and this of course include the bathroom *(bilik air)*. So

when asking the above question, one has to explain that bathroom and store room are not to be included in the answer as they are not habitable rooms.

The question on how many people (not part of your household) come and stay as your guests per year is equally confusing. Most of the respondents would spontaneously answer none. The general understanding for the definition of guests are those who are invited to the house for social celebrations, i.e., thanksgiving, new year, wedding, etc. but not to stay. And if they do stay, they are most likely to be relatives. In order to get the household to response to the question, it was worded 'how many of your relatives (not part of the household) come and stay as your guests....'. Since the low cost housing units have minimal space, it is not unusual for households not to have guests staying at all.

The researcher had omitted the question on, "how many other households live in this house who pay rent or do not pay rent," as none of the houses surveyed had more than one household living there. When asking the head of household on the total number of people in the household, it was the common tendency for the head not to include himself or herself. The assistants would then have to add the extra figure so as to include the head of household in their recordings.

4.3.4 Organisation of the Interviews

Since the original questionnaire was in English, it was decided to have it translated into *Bahasa Malaysia,* the lingua franca and official language of the country. This is to avoid impromptu translation of the questionnaires during the interview which may vary from one research assistant to the other. Even with the translated version, the researcher found that further clarification is needed at the beginning of the pilot interview. Bulmer (1993:12) discussed the problem of translation and admitted that language differences are widespread in developing countries.

> *"The issue is most acute in translating a question from one language to another. The meaning of words is seldom identical across cultures. Words as language terms depend on the context in which they are used, usually a particular culture. The thought-patterns of people in different cultures are expressed in terms of language and are often profoundly different one from another."*

According to most official reports, the majority of the population in the low cost housing schemes are the Malays whose mother's tongue is *Bahasa Malaysia.* The English questionnaire was only used twice. It was used with one Malay family in Sri, whose head of household was the manager of a nearby factory. The second time the interview was conducted in English was with a Chinese family also in Sri, where both husband and wife were teachers at a nearby secondary school and both were actively involved in the local branch of the Malaysian Chinese Association (MCA). In general, the researcher found that the respondents were comfortable in expressing their views and discussing the housing issues in *Bahasa Malaysia.*

Two architectural staff from the Ministry of Housing and Local Government assisted in conducting the interviews in Bahasa Malaysia. Both had experience of participating in the last national census in 1991. As for the Chinese households, the interviews were conducted by a Chinese architect from the Ministry of Works who had undergone a primary education in Chinese and had no problem in translating verbally the questionnaire from English into the most used Chinese dialects, i.e., Hokkien and Cantonese. These two dialects are commonly spoken among the Chinese communities in the low cost housing schemes. Occasionally, the educated Chinese household preferred the scholarly approach of conversing in Mandarin to the dialects. The Indian residents were mostly conversant with Bahasa Malaysia and there was no need to have the questions translated verbally into any Indian language or dialect.

Although the subject matter of the study was on housing transformation, which was not a major issue related to race or religion, it was felt that it would be an advantage to match the interviewers and respondents on ethnic backgrounds wherever possible (Bulmer & Warwick, 1993). In a way this would make the respondents more comfortable which was desirable for this interview as all questions had to be answered conscientiously. The problem of expressing views on certain issues were greatly reduced when a rapport existed between the respondent and the interviewer.

Prior to the survey, the three assistants were briefed to ensure that they were familiar with the methodology and purpose of the study. They were selected for this particular task based on criteria of their understanding of architectural matters, clarity of expression and, most important of

all, their enthusiasm in carrying out the interviews. It was agreed that most interviews would be carried out only during the weekends and at a leisurely pace, with no rush or agitation so as to gain mutual respect among the local residents. The ideal time was between ten o'clock and noon, and between three and six o'clock in the evening. Even with this arrangement we had difficulties in meeting some of the heads of households particularly in the Ara housing estate. Ara, being the closest to the city of Kuala Lumpur, offered lots of opportunities for the residents to supplement their monthly income by working during the weekends. For these households, we had to make several follow-up visits before we could finally meet the heads of household. For head of households who have permanent or regular jobs, it was possible to carry out the interviews during the evenings of any day in the week, between five and seven o'clock, when they returned from work. During the fasting month of Ramadhan, which began on 1st February 1995, and prior to the Haj season, the assistants were not expected to interview the Muslim households as a sign of respect to the activities of the Islamic religion. However, observation of other transformation activities that do not involve the respondents were not restricted to the above mentioned schedules.

Apart from the problem mentioned above, Ara presented another setback. The researcher was informed that the majority of the *Bumiputera* households in this area consisted of the 'Boyan' clan who were generally very apprehensive towards outsiders who showed interest in their living conditions. Despite the use of a 'middleman' who offered invaluable assistance in breaking through the barrier, the researcher had to patronise the sole coffee stall by the roadside by having breakfast there for several mornings, listening to the local gossip and watching the men folk playing draughts as their pastime, in order to gain their acceptance and inspire their confidence. By the end of the second week, the local residents got used to the researcher's presence and started to show interest in the survey. Eventually, the researcher was allowed to visit their homes and some were utterly disappointed that their house was not among those that had been randomly selected by the researcher.

The researcher certainly did not anticipate the election that took place on 25 April 1995. There were rumours among the public about the election but the exact date was only announced at the

eleventh hour. The preparation for the election affected the survey as the researcher's assistants were among those selected by the Head of the Department to participate in the preparatory works and were required to attend several briefings prior to the polling day. Thus the survey was at a standstill for a period of two weeks.

4.3.5 Contingent Valuation

This technique was used to explore the willingness of the respondent to pay for a certain good in a hypothetical market (Whittington et al., 1991). In most documented studies in which this approach was applied, the objective was to identify the levels that the respondents were willing to pay for the services which they did not have, and which would improve their quality of life eventually. For this research, the approach was similar as the respondents were asked about their willingness to pay for a hypothetical extension of the house in which they lived.

A photograph (Plate 4.1) of a typical and locally accepted form of an extended house in each housing estate was used as a substitute for a question item on the 'contingent valuation bidding game' used in the CARDO study. The respondent for this particular question must be living in a house that has not yet been transformed. One of the questions would be on the willingness of the respondent to spend on extension work similar to that shown in the photograph. With the help of the photo, the respondent was not burdened with the necessity of imagining the type of a typical extension that was expected out of him. This also provided the standard perception among all the non-transformers interviewed, of a typical extension carried out in the respective housing estates.

In order to obtain a realistic cost, a quantity surveyor was asked to calculate the estimates on the extension depicted in the three different photographs, each for the three selected housing estates. The estimated cost submitted by the quantity surveyor was used as the middle value which was the starting point for the bidding game. A higher or lower value was further selected depending on the answer given by the respondent. A sample of the questionnaire on the contingent valuation is in Appendix II.

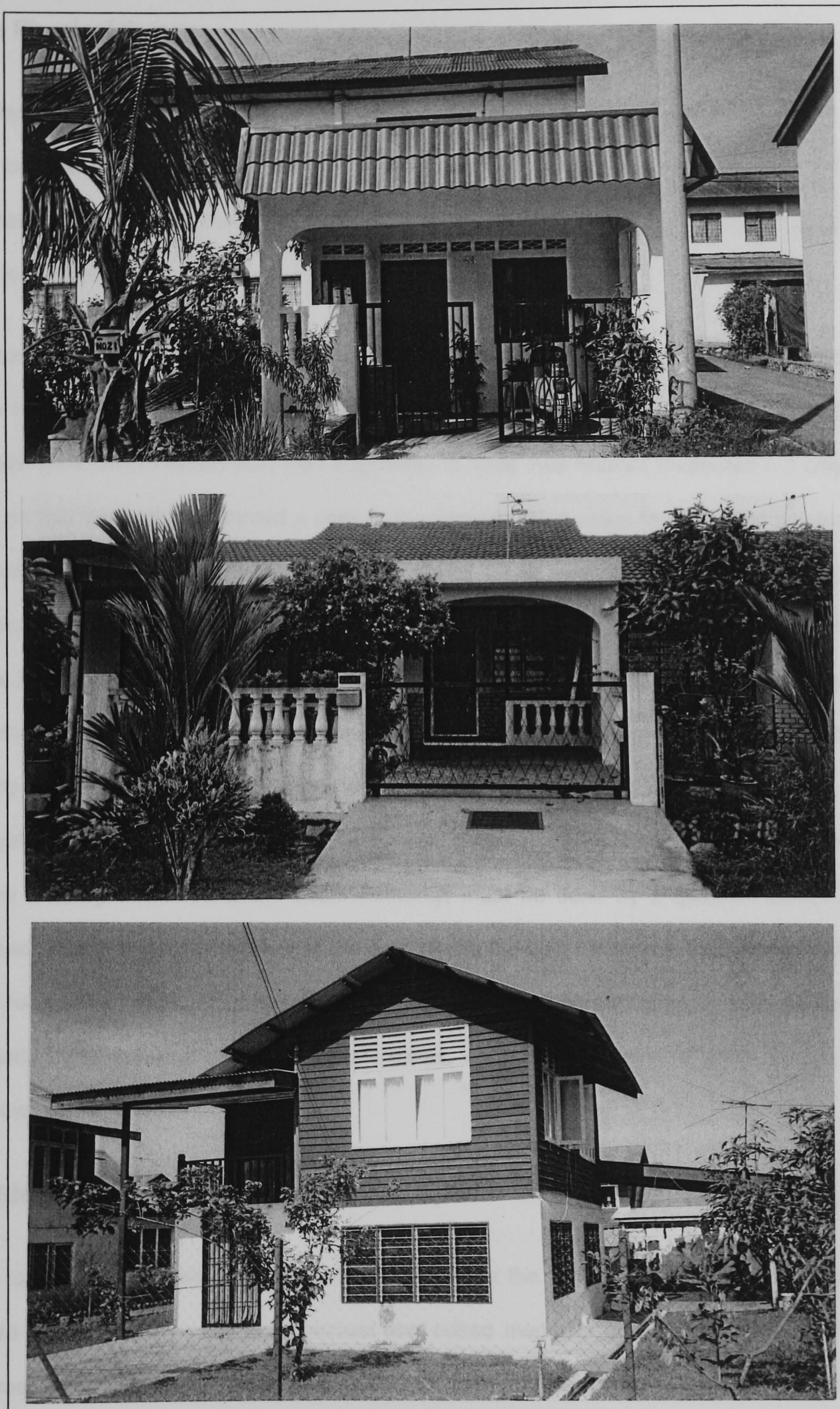

Plate 4.1 Models of Transformed Houses for the Contingent Valuation

The owner-occupiers in Ara (top) and Yam (middle) have extended the kitchen area right up to the edge of the drain in the rear. They have also added a porch over the main entrance.
The owner-occupier in Sri (bottom) has walled up the entire area beneath the first floor and kept the kitchen as in the original design.

4.3.6 House Physical Survey

The house physical survey provided the information on house types, household characteristics, the reasons for extending, expenditure on the extension works, etc. The houses in the three housing estates were standard units and all the plots were identical except for the end/ corner plots where most were slightly larger.

We were fortunate that the majority of the respondents actually allowed us to photograph and measure their houses as soon as the interview ended and some even assisted in taking down the dimensions. We were overwhelmed with their eagerness to have their houses measured but only realised later on that they actually wanted a copy of the plan of their houses from us. We did not mind giving one, in appreciation of their participation during the survey. We also found out that this sort of request normally came from those that had not applied for building permission from the respective Local Authorities. When asked what was the use of our 1:200 plans to them, the answer was that they would get a 'qualified person' to produce a set of working drawings based on our sketchy measured drawings. As stated in the UBBL, 1984, 'qualified person' means any architect, registered building draughtsman or engineer. Every plan, drawing or calculation in respect of any building submitted to the Local Authority, must be done by a qualified person. Should the need arise they would then submit the drawings to the Local Authority. Occurrences of a refusal only took place among the very few that had carried out elaborate transformation works and were usually in the better off groups. For these cases, we did not measure, let alone to carry out the interview.

4.4 DATA ENTRY AND ANALYSIS

The first step to the data analysis is to categorise and to enter the raw data on to the computer. The completed questionnaires were first checked and edited manually at the end of the day's survey. Cleared responses were keyed into the computer, and incomplete responses were followed up the following weekend or the next day whichever is applicable. The data are first grouped under the three different housing estates. The same data is then grouped under the different categories of transformers, i.e., the established transformers, the recent transformers

and the non-transformers. Since the data was collected through simple research tools, the analysis techniques used was a simple statistical packages. For the quantitative analysis, the data processing has been carried out using the Statistical Package for Social Science (SPSS).

4.5 LIMITATIONS OF THE STUDY

Since this study was the first such exploratory effort in Malaysia,[1] there was no method of determining whether the household case studies were a representative sample of the owner-initiated transformation throughout the country. There was also no method of determining if the statistical material on household characteristics provided by the Ministry of Housing statistical bulletin was skewed. Conclusions are therefore tentative and subject to change upon a more detailed sampling of the entire peninsular.

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1 Exploratory study takes a broader look at the phenomenon under study and no hypothesis is tested (Bouma 1993: 89). The main purpose is to gather information so that a description of what is going on can be made. For example for this particular study the researcher is interested in the factors taken into consideration by households in carrying out the transformation of their housing units.

CHAPTER 5

CHAPTER 5

SOCIO-ECONOMIC CHARACTERISTICS OF HOUSEHOLDS

5.0 INTRODUCTION

This chapter provides the detailed description of the three housing estates surveyed and the general profile of the established, recent and non-transformers. It is imperative to examine their socio-economic characteristics because the ability to afford the transformation depends on the income, status and financial commitments of the households.

5.1 LOCATION OF HOUSING ESTATES

The three selected urban housing estates for this study are Kampung Sungai Ara, Kampung Batu 30 Ulu Yam and Kampung Sri Serendah. The houses in the estates are all meant for low income households. However, they vary in terms of designs and structures for each housing estate. Except for Ara, the housing estates are located outside the Kelang Valley conurbation which stretches from Tanjung Malim in the north, and to Bangi in the south.[1] The Ara estate was a MYR3,163,380 (MYR24,000 per unit) project of 131 "low rise, medium density" housing units carried out by the Selangor State Development Corporation. The project started in December 1985 and was completed two years later. Ara, the nearest of the three estates to the city of Kuala Lumpur is a squatter rehousing project involving eradication of the squatter areas and replacing them with the 'approved' public housing, a strategy highly popular among the local housing authorities. During the construction of these houses, the squatters who are mainly the *Bumiputera* and Indians were housed temporarily in timber longhouses located not far from the housing estate.[2]

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[1] In Peninsular Malaysia, the Kelang Valley conurbations are critical areas for high density development, accommodating more than 500 persons/ hectare (The New Straits Times, 12 November 1990). One of the urban strategies for the central region of Peninsular Malaysia, (inclusive of Kuala Lumpur) is to disperse urban growth to outlying towns as far as Kuala Pilah and Bahau in Negeri Sembilan, and to Tanjung Malim/ Ulu Bernam in Perak. Through the improvement of several infrastructural facilities particularly in roads, the geographical spread of new industries and the development of industrial estates are sprouting in the nearby towns of Rawang, Serendah and Ulu Yam. These new urban developments would eventually create a demand for housing particularly to house the factory workers.

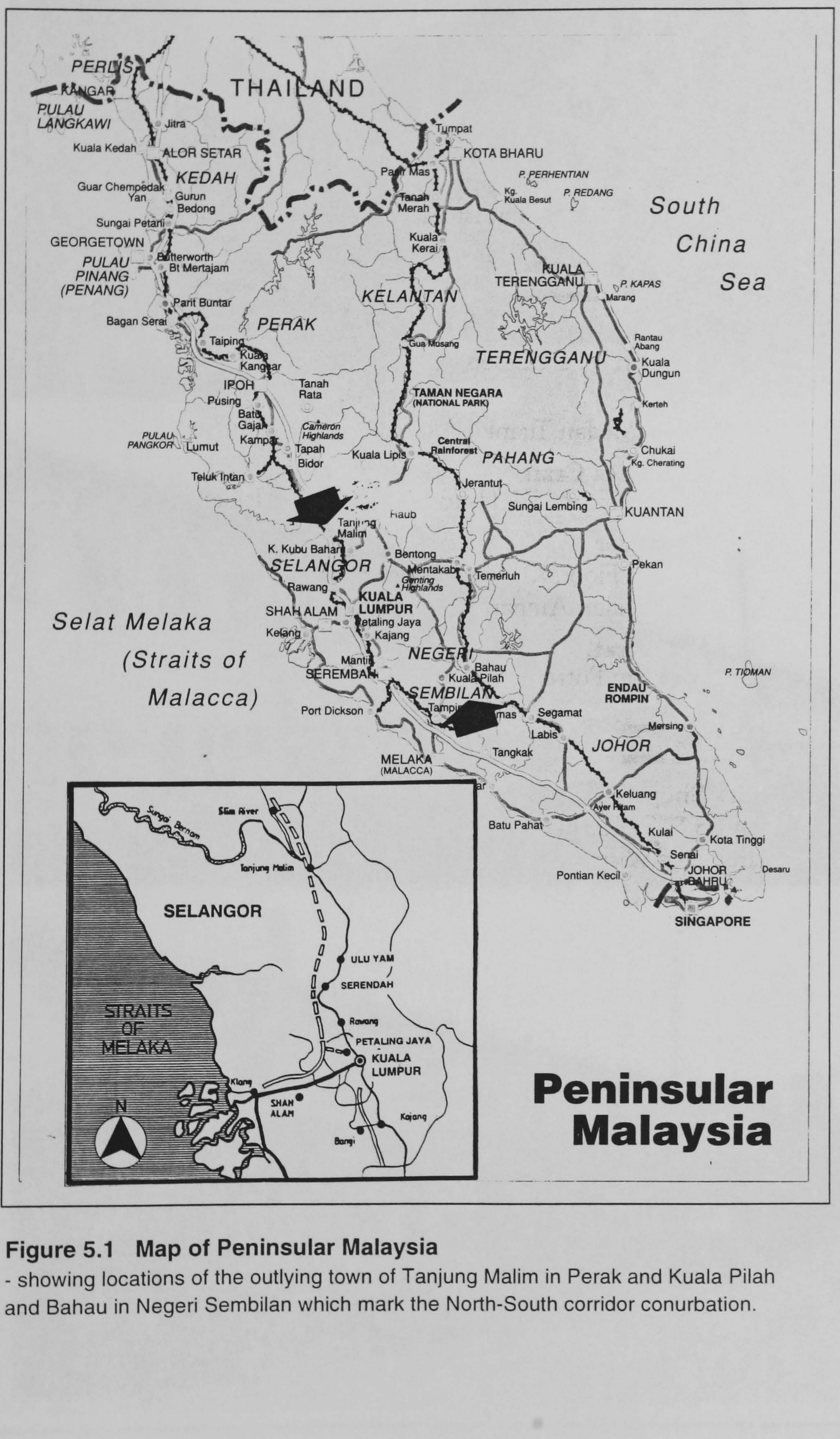

Figure 5.1 Map of Peninsular Malaysia

- showing locations of the outlying town of Tanjung Malim in Perak and Kuala Pilah and Bahau in Negeri Sembilan which mark the North-South corridor conurbation.

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resettlement of squatters to new areas or in existing areas through the process of in-situ development and eventually absorbing them into the low cost housing built by the government.

Plate 5.1 The Upgrading of Ara Squatter Settlement

Stage 1 - Ara's existing squatter settlement (top); Stage 2 - Ara's squatter settlement replaced with approved public sector housing (middle); Stage 3 - Transformation of public sector housing in Ara (bottom).

Ara is physically separated from the elite residential area of Damansara Utama on the east by the river Sungai Ara from which the name of the settlement originated, while on the West is the new township of Bandar Utama. Unlike the well-off neighbourhood which is under the Petaling Jaya (PJ) Town Council, Ara falls under the jurisdiction of the Petaling District Council. This means that Ara is not entitled to the same facilities as Damansara Utama and Bandar Utama, i.e., street lighting and door to door garbage collection. At present the residents in Ara have to empty their garbage in centrally located skips which are emptied once a week by the local authority. The residents in Ara are hoping for the facilities in the well-off neighbourhood to be extended to their housing estate but at the same time they are not willing to be administered by the PJ Town Council as this will result in an increase in the annual property tax for their houses. It can be argued that, by not granting these facilities, Ara will be less attractive than those more up-market housing estates nearby and thus prevent the displacement of the low income population and protect it from being gradually raided by the lower-middle income group.

Plate 5.2 The Non-Transformed, Prefabricated, Low Cost Houses in Ara [3]
Completed houses left vacant for more than two years due to problems in the allocation process.

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3 "Throughout the world, the production systems of de-personalised, anonymous neighbourhoods of formal housing are still maintained and regarded as the panacea for massive housing needs", Otto Greger and Florian Steinberg (1988).

Owing to a problem in the allocation process at the Selangor State government level as described in Chapter Three, the completed houses were left vacant for two years and were only occupied in 1989. Similar allocation problems seemed to prevail as the next completed rows of houses were still not occupied when this survey was conducted. Already some of these unoccupied houses are showing signs of deterioration and provide ideal hideouts for the city's drug users. According to the local representative, the squatter population in Ara disagreed with the idea of the State government allocating some of these houses to non-Ara residents as was done during the first allocation exercise. By doing so, they felt that the genuine squatter families in Ara would be deprived of getting these low cost houses. This proved to be true as three houses on the large end plots are owned by members of staff from the nearby district offices who were not residents in the Ara squatter areas before. Another generous end plot was occupied by a retired army officer. Apart from the latter, all the dwellings on these end plots are rented out and have not been transformed. Although the number of so called 'outsiders' who benefit from this housing scheme can be considered insignificant when compared to the total population in the housing estates, the feeling of dissatisfaction in the allocation system still prevails among the residents who were former squatters. Problems in the allocation procedure has always been a sticking point in the provisions of low cost housing in most developing countries. CARDO's study of the *'bastuhara'* housing in Bangladesh also showed the result with the housing schemes standing empty for a few years, only to be illegally occupied later on through middlemen.

The second group of households interviewed lived in Ulu Yam which is not far from the town of Batang Kali and is under the Hulu Selangor District Council. The housing estate consisted of three phases. The first phase, which is the oldest among the selected housing estates, was built in 1969 by the Housing Trust and the second in the late 1970s. The total number of houses built during the first two phases was only 82, while 115 houses were built for Phase Three and occupied in January 1991. The contract sum for the first and second phase was not available. However, the total contract sum for the third phase was MYR1,672,546 (MYR15,000 per unit). For the purpose of this research, these three phases in Ulu Yam will be grouped together and collectively known as Yam.

Sri, the third housing project surveyed, is situated in Serendah town which is 40 kilometres from Kuala Lumpur. It is by far the largest of the three estates surveyed, consisting of 412 individual housing units covering an area of 32 hectares. The standard design for these houses was prepared by the architects at the National Housing Department at the MHLG and the total contract sum was MR10,449,781 (MR25,000 per unit).

Plate 5.3 The Non-Transformed, Timber, Low Cost Houses in Sri

Sri was placed under the jurisdiction of Hulu Selangor District Council only in April 1994. Prior to that it was under no control of any specific local authority.[4] Obviously those who carried out the transformation work prior to the above date did not apply for building approval from any authority. Similar to Ara, some of the residents in Sri aired their grievances on the issue of the allocation process by the state government. A truck driver and a crane operator in Sri, who are both working on construction sites with annual incomes of MYR20,400 and MYR43,200 respectively, each had to pay MYR3,000 to their local representative in order to have their application forms processed by the state authority.[5] Their local representative was not only involved with the local political party but he is also appointed as the registrar of marriage for the Chinese population in Sri and the nearby areas. Obviously he is a man of great influence in this housing estate and both the truck driver and the crane operator were eventually allocated the low cost houses.

Based on the cost of the project divided by the total number of houses built, each housing unit costs around MYR24,000 in Ara, MYR15,000 in Yam (Phase III), and MYR25,000 in Sri. The cost of labour nearer the city is more expensive. This is probably why the houses in Ara cost more than those in Yam which is the furthest from the city centre. Furthermore the project in Ara is capital intensive as the houses are built in prefabricated concrete panels. Among the three estates, Sri has the highest cost because of the high cost of infrastructure which covers a much larger area since the houses are single units on larger plots. The layout in Sri is more spread out and less compact than Ara and Yam. As mentioned in Chapter Three the land cost is borne by the state government and the MY25,000 selling price imposed by the government includes the minimal cost of provision of the infrastructure facilities. Clearly the households in Ara and Sri had the best value out of the project while those in Yam had to pay almost MYR10,000 above cost price due to the fixed selling price of MYR25,000.

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4 Only 17 per cent of the total area in Peninsular Malaysia (130,063 sq km) is under the jurisdiction of a local government. The three types of Local Government in the country are the City Hall, Town Council and the District Council depending on the size, population and rate of development of the area (Phang 1989:37).

5 Pugh (1980:xiv) termed this informal or illegal payment to get access to housing in severe housing shortages 'key money'. Such payments were also common in nineteenth-century London and in the 1960s in Stockholm.

Plate 5.4 Examples of Transformed Timber Houses in Sri

These transformed houses have created 'variety out of uniformity'. The households have radically altered their houses creating an immense variety of house design without the professional input that was given in the original design.

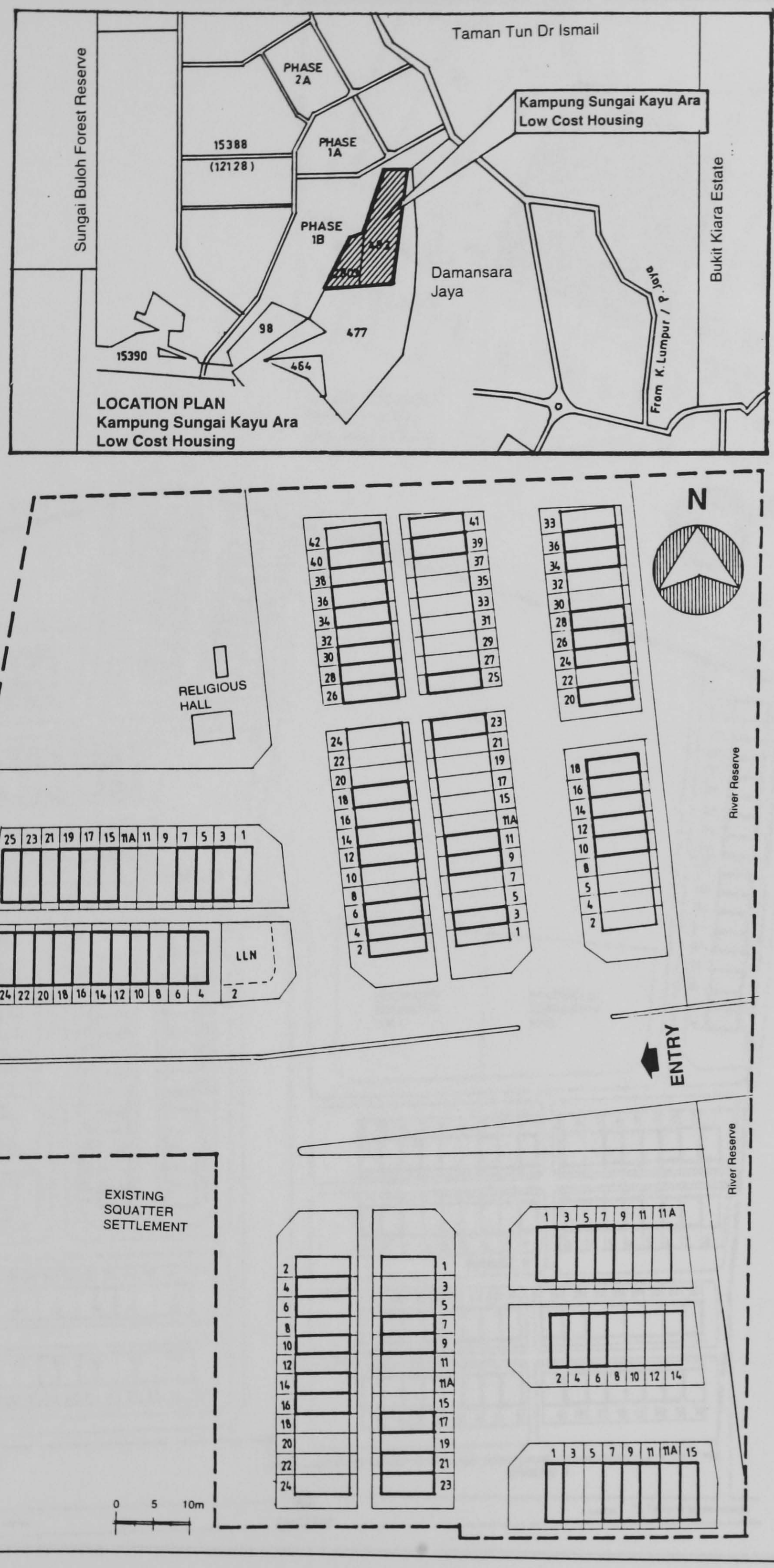

Figure 5.2 Site Plan - ARA
(Note: The overgenerous allowances for roads. Bold plots indicate transformation)

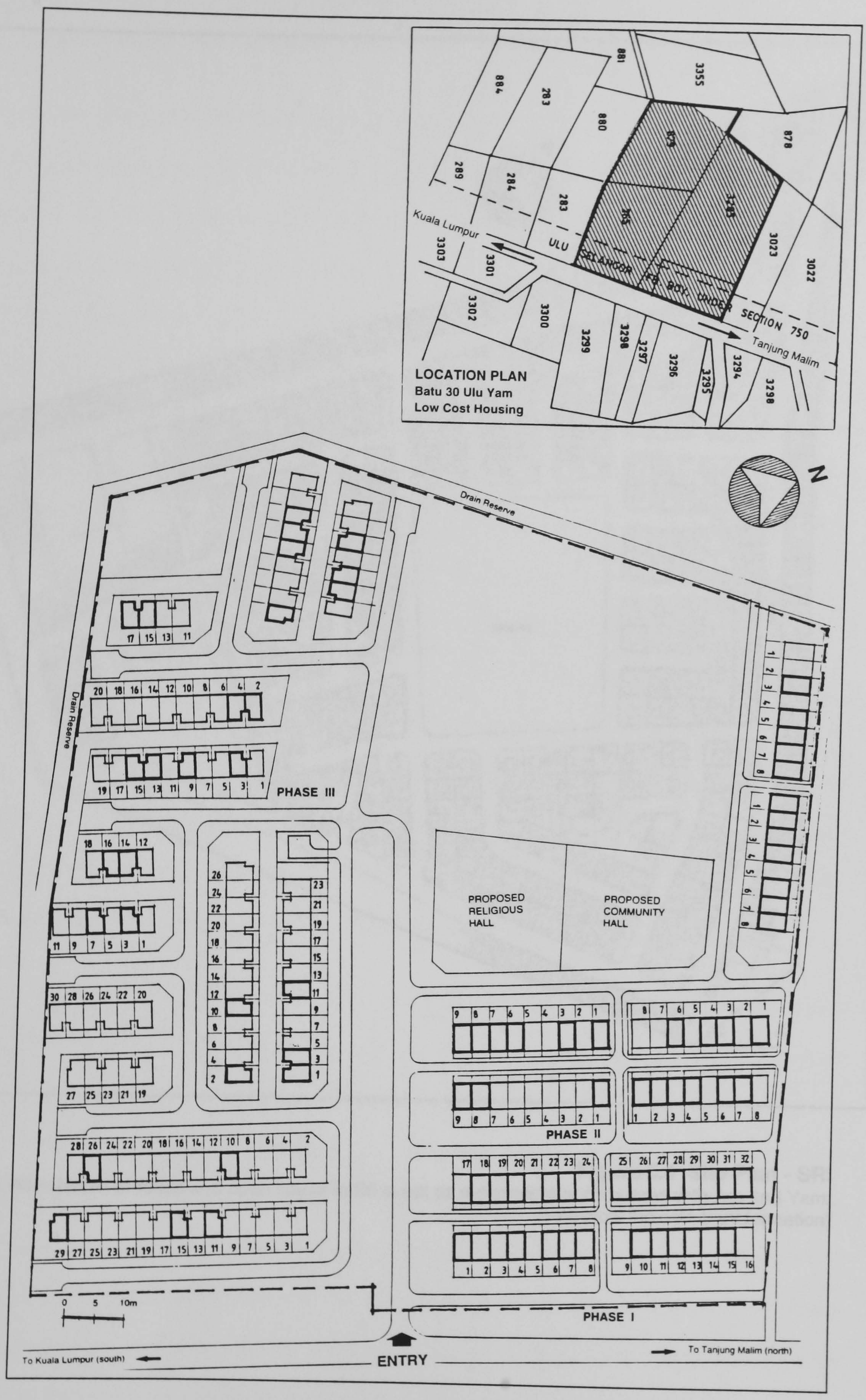

Figure 5.3 Site Plan - YAM
(Note: The overgenerous allowances for roads. Bold plots indicate transformation)

Figure 5.4 Site Plan - SRI

Note: Allowances of roads and open space in Sri is not as overgenerous compared with Ara and Yam. Bold plots indicate transformation)

5.1.1 Infrastructure and Services

On the whole, the quality of infrastructure provided in Ara, Yam and Sri is high by Malaysian standards, i.e., sewerage, drainage, water supply, electricity networks and tarmac roads.[6] The approach to the provision of services, to a large extent remains traditional by giving the layout to the engineers concerned with instructions to design the various infrastructure networks to fit the plan and to meet the existing design standards. No doubt, owner-occupation was envisaged right from the start but looking at the overall layout plan, the provision of nine metres wide internal roads were obviously far too generous for a housing scheme of this nature. There is an overgenerous allowances for open space which clearly represents an inefficient use of scarce resources. In general the standards are inappropriate in relation to the needs of the residents of the low cost housing estates and at times unaffordable. Although all the costs of services are borne by the local authority, this sort of expenditure could have been used to build extra houses for the low income group. The saving in cost can be substantial if the high standards of infrastructure is reasonably reduced instead of reductions in plot size. As a general rule, an efficient layout could have been achieved if these low cost housing estates were served with pedestrian walks, with access from vehicular cul-de-sac which are in turn connected to main vehicular circulation routes. Ara, Yam and Sri households have vehicular access right up to their front doorsteps and Ara and Yam have it at the back as well.

Officials from the MHLG, however, defended their views and felt that the widths of these roads and the provision of the back lane had to be strictly adhered to mainly to meet the requirements dictated by engineers and officials from the various departments, i.e., Fire Department, National Water Board, the Sewerage Department, the Telecommunication Department, the National Electricity Board, etc. The agreed layouts are based on the design standards which are used for the non-low cost housing estates within the city. Not only are the layouts over designed but they are generally inappropriate in relation to the real needs of the low income group. This colossal waste of high value land on roads is to some extent being remedied by the residents themselves by planting fruit trees, or setting up informal food stalls or even a small coffee shop. Several

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6 The width of the main road is 20 metres, entrance road is 12 metres and the internal road is 9 metres.

alternatives had been prepared by the MHLG in the mid 1980s regarding the 4.6 metres wide back lane which is classified as an escape route in the event of a fire outbreak within the housing estate. The house has to be set back 4.6 metres from the main road or 2.3 metres if it is facing the pedestrian walk. MHLG also recommended a new plot size for single storey (5 by 17 metres, i.e., 85 square metres) and double storey (4 by 16 metres, i.e., 64 square metres) low cost housing. The current plot size is 108 square metres for single storey (Yam) and 72 square metres for double storey (Ara).

According to the MHLG officials, the reduction in plot size will ensure that the houses built will be affordable for the low income group and the density of the new low cost housing estates will be increased. The latter seems logical but the reasoning on affordability based on the reduction in plot size is rather odd because no matter what the plot size is, the government will still maintain the sale price of MYR25,000. As stated earlier, the cost of land for these low cost housing units is usually borne by the state government. A possible reason for the reduction in plot size could be that, with the current plot size, the officials feel that the selling price ought to be much higher than MYR25,000. Thus in order to maintain the old selling price, the government feels justified to have the plots reduced. Furthermore, the reduction in plot sizes is less obvious than an increase in the price of a low cost housing unit which could be a favourite issue for debate by the opposition party and among the local housing activists.

Clearly, it is the utilisation of high standards of infrastructure in public low cost housing that result in the inability of a high proportion of the low income groups to afford these houses. The houses in the end will fall into the hands of the higher income group who, in terms of purchasing power, are more influential than the target group (Grimes, 1976). This would result in inefficiency in wealth distribution. Market imperfection in meeting the demand of the higher income group may also suggest that this group will gain access to a low cost housing programme which is highly subsidised.

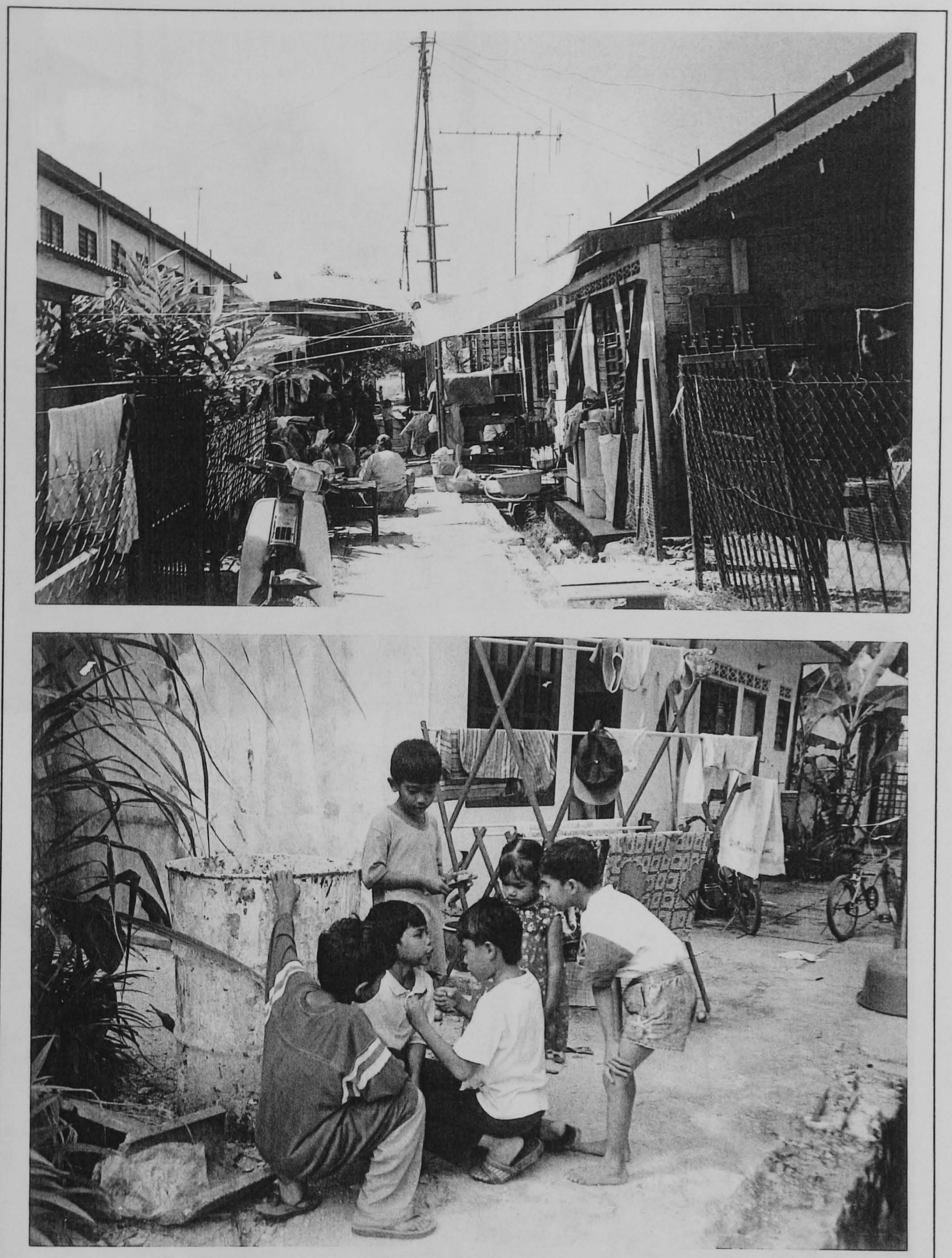


Plate 5.5 Lively Back Lanes in Ara

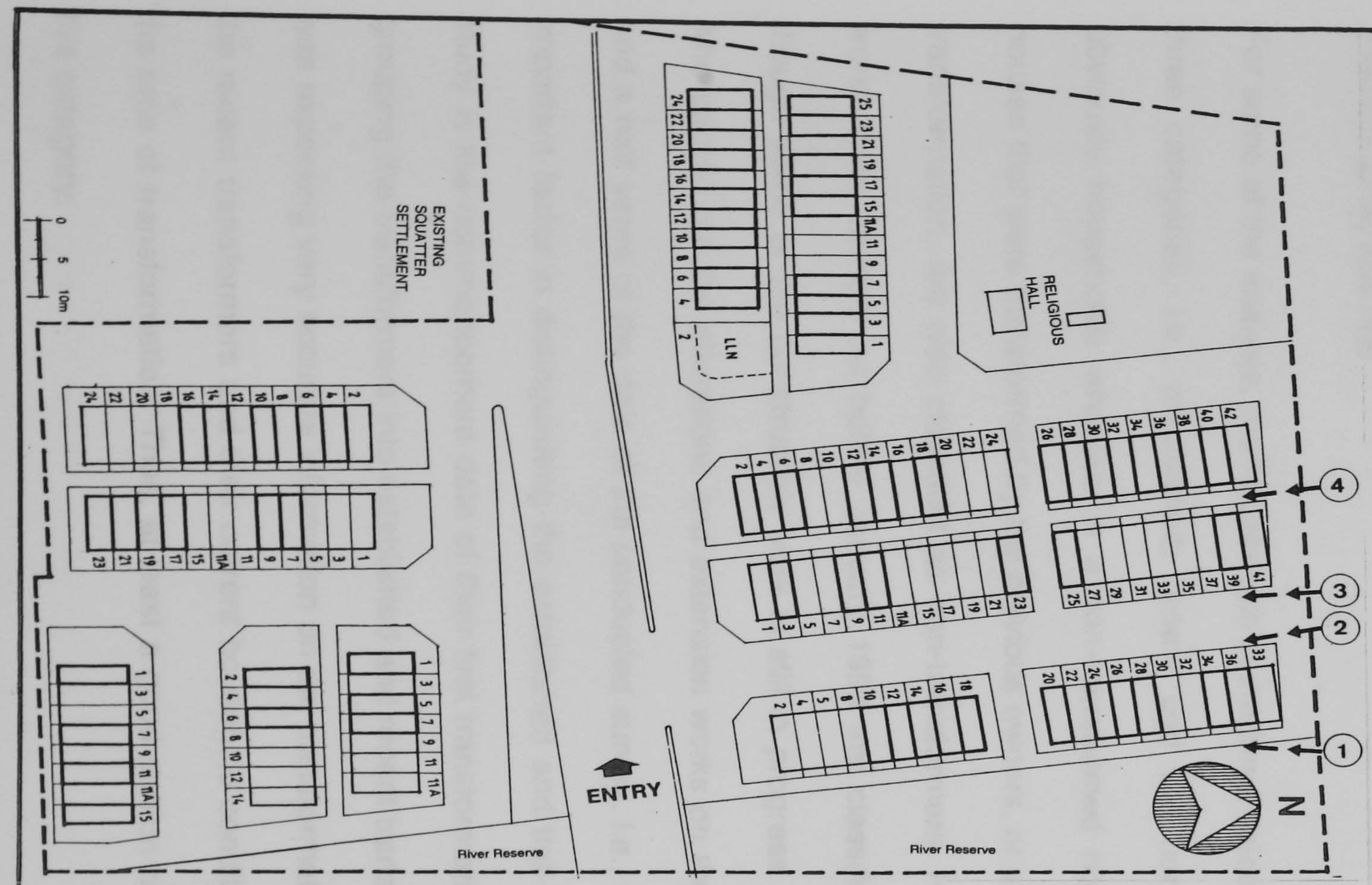
Precast concrete slabs are used for the back lane. Single drain and electricity poles are located in the back lane instead of in the front. Generally, back lanes are full of activities. Women in some households do their laundry and food preparations in the back lane (top) and children can have fun under the watchful eyes of their mothers (bottom).

Plate 5.6 Back Lane in Ara

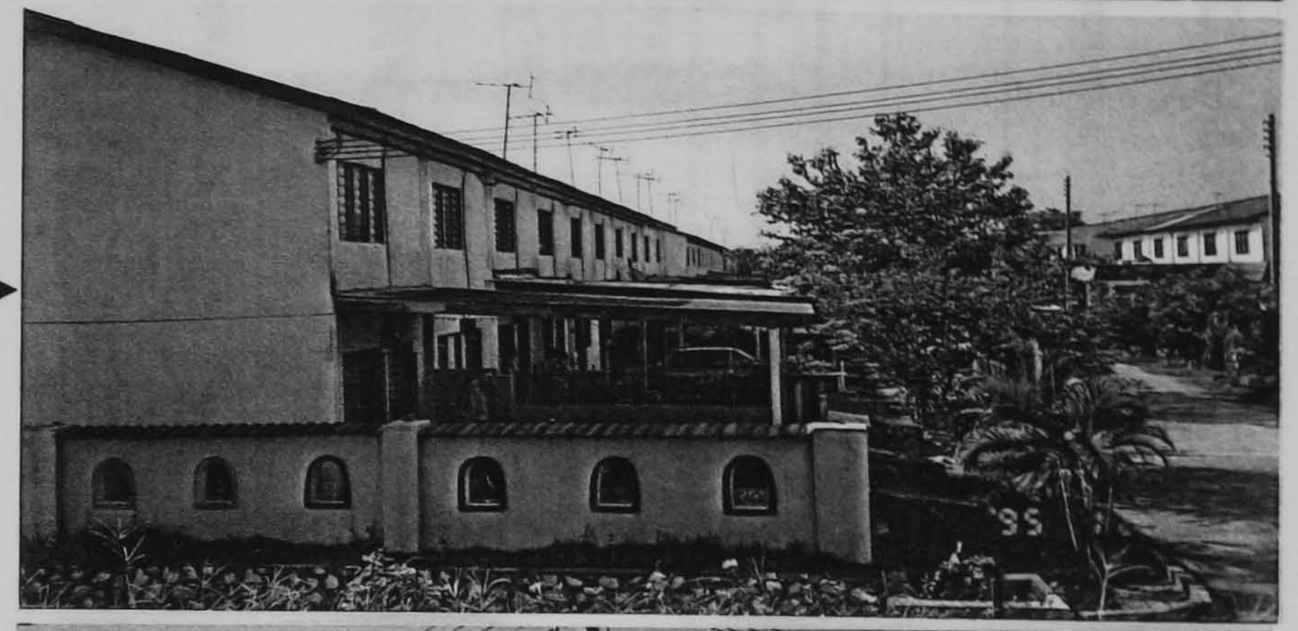
The extensions of the newly built kitchen in one of the units (top). Note the protruding reinforcement bars above the kitchen's roof level indicating that a room will be added in the next phase. The completed extension will be similar to those houses shown in photograph (bottom).

Plate 5.7 Extravagant Back Lane in Yam

The 6 metres wide lane with drains on both sides is an example of an extravagant provision on infrastructure. Instead of using precast concrete slabs as done in Ara, the lane is fully tarmacked. However, patches of grass are sprouting on the poorly laid tarmac indicating the absence of a substantial sub-base. The lane is desolate most of the time and lacks the activities as seen Plate 5.2. As usual, the permanent extension to the kitchen stops on the edge of the drain (arrow 1) but temporary structures have gone beyond the drain line and have encroached onto the public space (arrow 2 and 3).



The layout plan shows the location of the photographs on the right. Circles and arrow heads indicate directions in which the photographs were taken.
Drastic transformations (black arrows) had took place in the back lane resulting in an increase of kitchen area on the ground floor with a room built directly above.



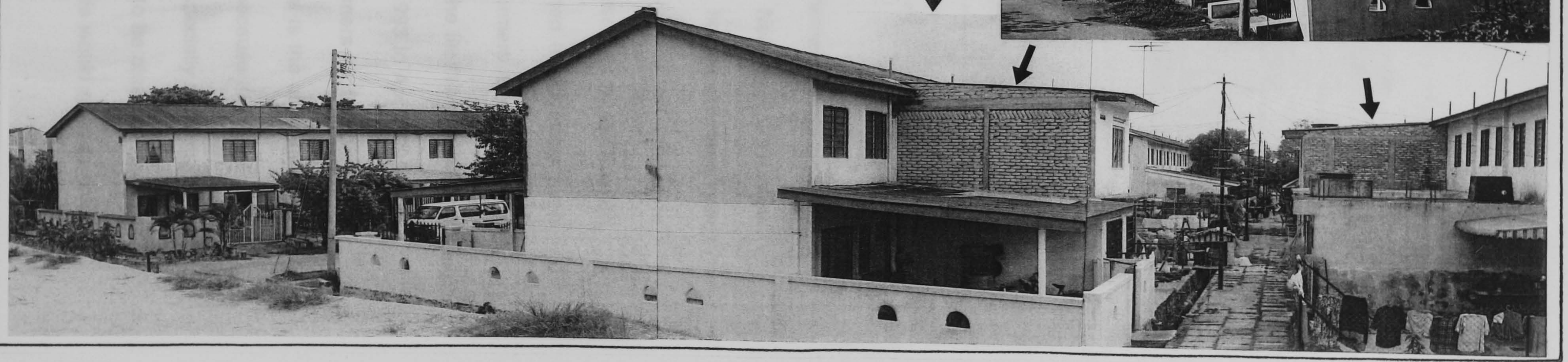


Plate 5.8 The Transformation Process in Ara

5.2 THE HOUSEHOLD SAMPLE

Table 5.1. The Breakdown of the Sample

HOUSING ESTATES	*Ara*	*Yam*	*Sri*	*All*
Year occupied	1989	1969 & '91	1991	-
Number of housing units	131	197	412	740
Number of transformers	66	84	130	280
Number of non-transformers	65	113	282	460
Sample size of transformers	26	36	60	122
Sample size of non-transformers	16	21	24	61
Total sample size	42	57	84	183
Sample size / Total housing units	32%	29%	20%	25%

Table 5.2. The Sub-Samples

HOUSING ESTATES	*Ara* *n=42*	*Yam* *n=57*	*Sri* *n=84*	*Total* *n=183*
Established transformers (Est)	18	27	42	87
Recent transformers (Rec)	8	9	18	35
Non-transformers (Non)	16	21	24	61

Fieldwork survey April 1995

For some of the analysis, the households in the three selected housing schemes are grouped into three categories, i.e., established, recent and the non-transformers. Non-transformers are obviously households who live in a non-transformed house. However, households who own houses that were transformed by the previous owners, or are renting a house that had undergone transformation, are also classified as non-transformers. Households whose first transformation works were carried out before January 1993 are classified as established transformers even though some of the construction work is still in progress. Recent transformers are households who carried out the alterations and extension works on their houses for the first time within two and a half years of the date of the conducted survey, i.e., from January 1993 to April 1995. The important factor in distinguishing the established and the recent transformers for this particular study is the commencement date of their first transformation works. What is the advantages of grouping the transformers into established and recent transformers? It is because the researcher was expecting very accurate information on the transformation process, especially on costs, from the recent transformers and their current household conditions are likely to be close to those at the time of transformation. Thus, at least a good portion of the households would need to be in this category.

5.3 GENERAL PROFILE OF HOUSEHOLDS

Table 5.3. Household by Ethnic Group (%)

	HOUSING ESTATE			*TRANSFORMATION CATEGORY*			
Ethnic Group	***Ara***	***Yam***	***Sri***	***Est***	***Rec***	***Non***	***All***
Chinese	0	23	25	22	23	11	19
Indian	19	12	15	14	11	20	15
Bumiputera	81	65	60	64	66	69	66

With the implementation of the New Economic Policy in 1970, there was an influx of the *Bumiputera* into the urban setting which resulted in the highest incidence of low income groups in the urban neighbourhood whose welfare is of central concern to the government. One of the objectives of the NEP is to create among the *Bumiputera* an industrial and business community which, it is hoped, within a generation will own and manage at least 30 per cent of all industrial and business activities. The government believed in having higher rates of *Bumiputera* owner-occupiers even if they are only in the low cost housing estates. This would give the *Bumiputera* a firmer stake in the urban society. So, it come as no surprise, to find the majority of the households in the public sector low cost housing estates are *Bumiputera* who tend to have low income.

Table 5.4. - Age of Household Head (%)

	HOUSING ESTATE			*TRANSFORMATION CATEGORY*			
Age Group	***Ara***	***Yam***	***Sri***	***Est***	***Rec***	***Non***	***All***
Mean (years)	44	43	42	46	41	38	43
Median (years)	43	41	41	45	40	38	42

The distribution of age in Table 5.4 does not vary much between Yam and Sri. In Ara the head of household tends to be slightly older owing to the fact that the majority of the respondents were those who had been living in the eradicated squatter areas for more than 10 years before being selected to be owner-occupiers of the nearby low cost public housing. The non-transformers are very much younger than the established and recent transformers. One would expect the heads of household in Yam to be much older since the first phase was occupied more than twenty years ago. However, when the three phases are combined together, with the number of heads of household in the third phase being twice the number in the two phases, the median age turned out to be 43.

Table 5.5. Age of Eldest Child

	HOUSING ESTATE			*TRANSFORMATION CATEGORY*			
Age	***Ara***	***Yam***	***Sri***	***Est***	***Rec***	***Non***	***All***
Mean (years)	18	16	15	20	15	11	16
Median (years)	18	13	13	18	13	10	15

Table 5.6. Age of Youngest Child

	HOUSING ESTATE			*TRANSFORMATION CATEGORY*			
Age	***Ara***	***Yam***	***Sri***	***Est***	***Rec***	***Non***	***All***
Mean (years)	7	7	7	9	7	4	7
Median (years)	6	3	5	8	6	3	5

Most of the households in the three housing estates consist of married couples with teenage and younger children. In Yam, the earlier phase comprised older couples with adult children. The newer phase contained young families with a high percentage having no second child, 19% of them had a youngest child below 1 year old. The presence of these pre-school children suggests that households may not urgently require any additional space or rooms as the children could still share a room at this stage (McLeod and Ellis, 1982). Very few of the established transformers' households consist of young families; their children are mainly about to reach adulthood. Forty per cent of the established transformer households have oldest children between 10 and 19 years old. Equivalent figures are 52 per cent for the recent transformers and 33 per cent for the non-transformers. These are the sort of households for whom housing stress is likely to be acute so their transformation activities come as no surprise.

All values listed on the top of the rows of cells of most tables in Chapter Five and Chapter Six are the medians (or the 50th percentiles) unless otherwise stated. The interquartile range (IQR), which are the 25^{th} and 75^{th} percentiles, are on the bottom of the rows in brackets. The IQR allows us to look at the middle 50 per cent of the sample. These values are used to show central tendency and spread instead of the means and standard deviations because, generally, data on housing and socio-economic variables tend to be skewed and means are distorted by the outliers. However, medians are not much affected by the long tails (de Vaus, 1990).

Table 5.7. Measures of Permanence of Households (means, medians and IQR)

BY HOUSING ESTATE		***Ara***	***Yam***	***Sri***
Age of head of household	(mean)	***44***	***43***	***42***
	(median)	***43***	***41***	***41***
		(39, 48)	(34, 50)	(36, 47)
Age at moving in	(mean)	***39***	***34***	***38***
	(median)	***39***	***35***	***38***
		(34, 42)	(26, 41)	(33, 43)
Age at first transformation		***35***	***35***	***36***
		(0, 42)	(0, 41)	(0, 43)
Length of stay in the house		***6***	***5***	***4***
		(5, 6)	(3, 10)	(3, 4)
Length of time in current employment		***10***	***7***	***15***
		(4, 20)	(3, 16)	(5, 20)
Years in education		***6***	***6***	***9***
		(6, 9)	(6, 11)	(6, 11)

BY TRANSFORMATION CATEGORY		***Established***	***Recent***	***Non***
Age of head of household	(mean)	***46***	***41***	***38***
	(median)	***45***	***40***	***38***
		(39, 52)	(37, 45)	(32, 43)
Age at moving in	(mean)	***40***	***37***	***34***
	(median)	***40***	***35***	***34***
		(33, 45)	(32, 40)	(26, 41)
Age at first transformation		***40***	***39***	not applicable
		(35, 46)	(36, 43)	
Length of stay in the house		***5***	***4***	***4***
		(4, 6)	(3, 6)	(2, 6)
Length of time in current employment		***15***	***12***	***6***
		(5, 21)	(5, 18)	(3, 15)
Years in education		***6***	***9***	***9***
		(6, 9)	(6, 11)	(6, 11)

Most of the households were in their mid-thirties when they first moved into their houses but the established transformers tended to move in when they were around forty years old and carried out the transformations very quickly. Around 30 per cent of the respondents are from the low income group, and these households are expected to be burdened with the monthly repayment of the housing loan but their ability to finance the cost of transformation at the same time is part of what this research hopes to find.

The immediate transformation carried out among the households is contrary to the findings made by Tipple (1997) in Bangladesh where the likelihood of transformations increase with the length of

stay in the house.[7] In Malaysia, there is no difference at all between the established transformers and the recent transformers in the age at which they carried out their first transformation. Regardless of their length of stay in the house, location, and income, the trend is that transformation generally occurs when the head of household is around forty. This indicates that the households are confident and the transformation could have been triggered by the households' developing needs. At this age, the household will generally comprise a married couple with the eldest child's age ranging between 10 and 19 years. The household is still growing with the youngest child between 1 to 9 years of age (see Table 5.5 & 5.6).

Table 5.8. Educational Level of Household Heads (%)

	HOUSING ESTATE			*TRANSFORMATION CATEGORY*			
Number of years	***Ara***	***Yam***	***Sri***	***Est***	***Rec***	***Non***	***All***
0	7	5	2	3	6	3	4
6	62	49	36	54	31	44	46
9	17	18	21	20	26	15	19
11	14	25	29	15	34	31	24
13	0	2	4	2	3	2	2
16	0	2	8	5	0	5	5
Mean (years)	7	8	9	8	8	8	8
Median (years)	6	6	9	6	9	9	6

Note: 0 = No formal education
6 = Primary or religious education
9 = Lower Certificate of Education (LCE)
11 = Malaysian Certificate of Education (MCE)
13 = Higher School Certificate (HSC)
16 = College/ University

The distribution of educational qualifications among the heads of households shows that 46 per cent have only completed their primary education. A few are without formal education, mainly in Ara and Yam and particularly among the older age group. Those who had either college or university education were mostly living in the Sri housing estate. The head of household's level of education is important not only because it affects their income earning capacity but also because it determines the housing consumption within the household. One would expect that those owner-occupiers with better income capacity could afford better quality housing improvements. The

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7 The length of stay in the house among the transformers for all the studies carried out by CARDO is more than 10 years while that in Malaysia for this particular study is only 5 years except for Yam Phase 1 which is more than 20 years.

analysis in Chapter Six will look at the influence of educational level on the cost of transformation, i.e., do higher educated households spend more on transformation and do less educated household tend to spend less and are they more likely to carry out self-help transformations?

> *"A persons' income, education, and occupation have all been related to his choice of a place to live. White collar workers, for example, are likely to spend a greater part of their income on housing than blue collar workers are. Those with more education spend a greater percentage of their incomes on housing than the less educated", (Michelson, 1968:189).*

5.4 RELATIVE WEALTH INDEX

The five most common household items owned by the households are electric fans, televisions, gas cookers, refrigerators and radios. Because of the high incidence of ownership of gas cookers and refrigerators, most feel that the kitchen area of the low cost house needs to be enlarged in order to house them. There are some households who even own a microwave oven but they formed an insignificant proportion of the population. Around 57 per cent do not own a car and 38 per cent do not have a motorcycle. Surprisingly, as a mode of cheap transport, the bicycle is not as popular as the motorcycle. The relatively high incidence of ownership of motorcycles and cars has led the households to extend the front portion of their houses into porches so that their vehicles will be protected from the intense daily heat of the sun and the frequent torrential rain.

Table 5.9. Consumer Durables (%)

	HOUSING ESTATE			*TRANSFORMATION CATEGORIES*			
Consumer Durables	***Ara***	***Yam***	***Sri***	***Est***	***Rec***	***Non***	***All***
Electric fan	100	97	98	99	100	95	98
Gas cooker	100	95	100	100	100	95	98
Refrigerator	95	86	99	99	97	85	94
Radio	88	91	95	93	97	89	92
Television	88	97	100	99	100	90	96
Rice cooker	86	81	89	91	94	74	86
Washing machine	72	49	80	72	89	51	68
Sewing machine	67	58	58	69	74	39	60
Motorcycle	62	60	63	62	63	61	62
Video	48	40	57	53	66	36	50
Car	38	28	55	40	49	43	43
Bicycle	29	21	16	23	23	15	20
Stereo	12	14	31	22	34	13	21
Air conditioner	2	4	10	8	9	2	6

Based on the ownership of the above household items, it is possible to determine a relative wealth index for each household in the 3 selected housing estates and the households of the different transformation categories using the formula that was used by the CARDO team (Garrod *et al*,1994). The 2 main factors used are as follows:-

- the estimated cost of the household item
- the relative frequency of ownership of that household item in the sample

A set of 13 household items as listed in Table 5.8 are used to formulate the index along with the estimated cost for each item. All costs refer to the cost of new goods because it is very uncommon to purchase such items second hand except in the case of cars. The price of a brand new car is equivalent to or sometimes more than the cost of the housing unit itself. Thus the car would so distort the index that it is not included in the formulation of the relative wealth index. The set of household items selected in the formula are those that the majority of households would wish to have if they could afford them.

Table 5.10. Price Data of Consumer Durables

CONSUMER DURABLES	*1995 PRICE (MYR)*	*RELATIVE PRICE INDEX (based on electric fan)*
Stereo	4000	80.0
Motorcycle	3000	60.0
Video	1800	36.0
Air conditioner	1600	32.0
Refrigerator	1400	28.0
Television	1200	24.0
Washing machine	800	16.0
Sewing machine	280	5.6
Bicycle	200	4.0
Gas cooker	120	2.4
Radio	100	2.0
Rice cooker	80	1.6
Electric fan	50	1.0

Table 5.10. shows the relative price index based on the cost price of an electric fan, which is the cheapest household item in the set. For each item, the index number is formulated by comparing the price of that item with the price of an electric fan. Since wealth is the factor permitting the household to acquire the items listed above, it can be considered that the acquisition of an uncommon item among the respondents in the sample would be an indicator of relative affluence. The formula to show a positive indicator of relative wealth the 'inverse relative frequency of ownership' (IRFO) is as follows:

$$\mathbf{IRFO = 100 / Prop_i}$$

where $Prop_i$ is the percentage of respondents who own item i. Both the RPI and the IRFO of an item is applied in the following equation so as to get the RWI for each respondent.[8]

$$\mathbf{RWI_k = [\ \Sigma_i\ OWN_k\ (RPI_i * IRFO_i)] / [\Sigma_i\ RPI_i * IRFO_i]}$$

where OWN_k is a variable taking the value 1 if the respondent k owns the item i, and 0 otherwise. From the calculation the value of RWI ranges from 0 (when the respondent owns none of the items) to 1 (when the respondent owns all the thirteen items).

8 Mathematical input for this study was carried out by Dr G Masters.

Table 5.11. Relative Wealth Index

BY HOUSING ESTATE	***Ara*** *n=42*	***Yam*** *n=57*	***Sri*** *n=84*
Mean RWI	0.199	0.197	0.300
Standard Deviation	0.166	0.168	0.221
Frequency of RWI = 0	0	0	0
Frequency of RWI = 1	1	0	0
Correlated with Annual Total Income (TOINCO)	0.126 p=0.400	0.065 p=0.600	0.408 p=0.001
Correlated with Annual Total Expenditure (TOTEX)	0.204 p=0.200	0.180 p=0.200	0.323 p=0.003
Correlated with CAPITA	0.049 p=0.800	0.175 p=0.200	0.272 p=0.323
BY TRANSFORMATION CATEGORY	***Established*** *n=87*	***Recent*** *n=35*	***Non*** *n=61*
Mean RWI	0.279	0.274	0.180
Standard Deviation	0.220	0.207	0.138
Frequency of RWI = 0	0	0	0
Frequency of RWI = 1	1	0	0
Correlated with Annual Total Income (TOINCO)	0.383 p=0.000	0.385 p=0.020	0.120 p=0.400
Correlated with Annual Total Expenditure (TOTEX)	0.412 p=0.000	0.299 p=0.080	0.072 p=0.600
Correlated with CAPITA	0.292 p=0.010	0.371 p=0.030	0.173 p=0.200

p>0.05 (not significant), p<0.005 (significant at 5 %), p<0.001(highly significant)

Table 5.11 gives the mean RWI for each of the three housing estates and each of the three transformation categories respectively. It clearly shows that RWIs are generally low. Sri is the most affluent among the three housing estates and, as expected, the established and the recent transformers are 50 per cent more affluent on this measure than non-transformers. The RWI for housing estates and the transformation categories show that the respondents do have a certain amount of disposable income and some of this would have been spent on transformations of their housing units. The correlation between RWI and the annual total income is highly significant only in the case of Sri and established transformers which have the biggest sample. Per capita income is significantly correlated at the 5 per cent significance level while the total income and total expenditure is highly significantly correlated with the RWI in the case of the established transformers.

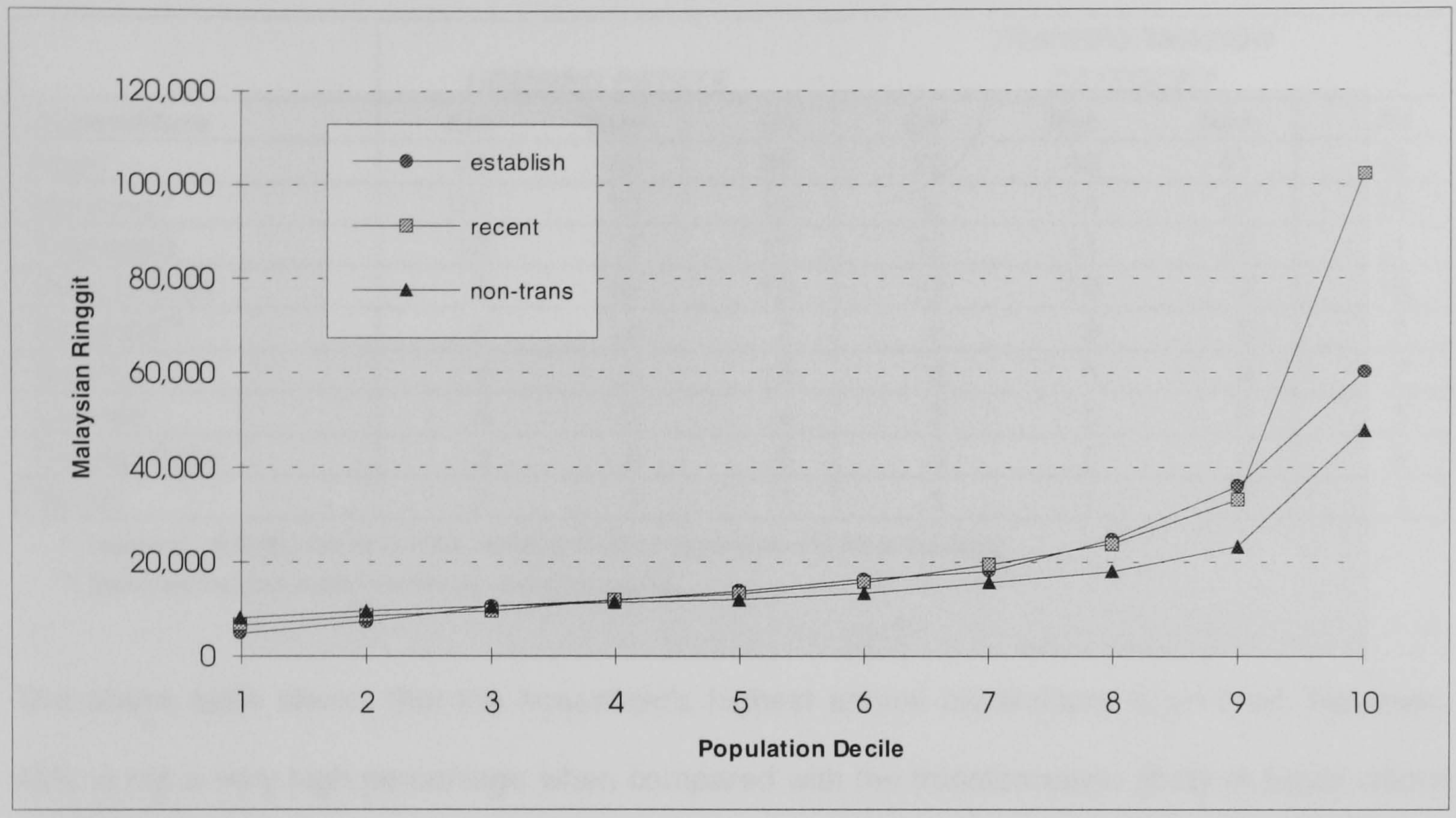
5.5 HOUSEHOLD INCOME

The median annual household income for Ara, Yam and Sri is MYR12,000, MYR12,000, MYR17,580 respectively. The proportion with income below MYR9,000 who form the target group in Ara is 14 per cent, in Yam it is 35 per cent and in Sri it is 18 per cent. This indicates that the majority of the households are not likely to have difficulty in paying their monthly instalment on the house purchase. The presence of those earning more than MYR18,000, which is twice the target income limit, indicated that those in the lower end of the middle income spectrum were attracted into the low cost housing market (raiding) due to the shortage of houses for the middle income group.

At the time of the survey, 44 per cent of the respondents in Sri and 10 per cent for each of the housing estates in Ara and Yam have an average income of more than MYR18,000. There is a possibility that their total income could have risen over time since the years they moved in; these are 1989 (Ara), 1970 (Yam) and 1991 (Sri). Assuming that their original income was MYR9,000 but had risen to MYR18,000, within a period of three years in Sri, this would imply an average rise of MYR3,000 per annum which is a very high increase. The question here is whether the households had understated their total income during the submission of their applications or whether the officials themselves were biased towards the middle income group as discussed in the allocation process in Chapter Three. Whatever the reasons, it is clear that many owner-occupiers are not in the target group.

The mean annual household income among the non-transformers is the lowest with the proportion of those with more in the qualifying income of MYR9,000 than any other group. However, 14 per cent of the non-transformers have income that is above MYR20,000. These are mostly renters in Sri who are college-educated and are still looking around for a place of their own. At the median, there is only a slight difference in the total annual income between the transformers and non-transformers.

Figure 5.5 Total Income by Deciles



Most households whose head has been employed for more than ten years are able to carry out the transformations with their savings, as soon as they move in. As mentioned in Chapter Three, MHLG officials are aware of the shortage of houses for the lower middle income group who are now 'raiding' the low cost housing schemes. The government strongly believes that the solution to the above problem will be to provide medium cost houses and 800,000 units will be built during the Seventh Malaysia Plan (1996-2000).

Although questions on expenditure have been asked and the data are used as a proxy for households whose income are not clearly revealed, we still ask for income data from the respondents. This is useful because we are able to assess the reliable source of income and this enables us to understand the economic activities taking place. It is evident particularly in Ara that business profits are the chief source of income. Of course, there are respondents who would tend not to reveal the actual or exact profits from their businesses and that the business profits could be even higher in reality. At least we have not ignored the possibilities of such an income. Rents are very insignificant as a source of income among the respondents in the three housing estates surveyed. Very few respondents benefit financially from being landlords.

5.6 HOUSEHOLD EXPENDITURE

Table 5.12. Household Expenditure (%)

	HOUSING ESTATE			*TRANSFORMATION CATEGORY*			
Expenditure	***Ara***	***Yam***	***Sri***	***Est***	***Rec***	***Non***	***All***
Food	41	42	38	40	40	41	40
Housing *	15	13	14	12	14	17	15
Transport	12	9	12	12	11	10	11
Vehicle loan	8	12	10	12	10	7	10
Services**	9	9	7	8	8	6	7
Savings	4	5	9	6	5	9	7
Clothes	6	5	4	5	5	5	5
Celebrations	3	4	5	4	5	4	4
Social	2	1	1	1	1	1	1

* Housing includes housing loan, rental and other expenses related to housing.

** Services include water, electricity and phone bills.

The above table shows that the household's highest annual expenditure is on food. However, 42% is not a very high percentage when compared with the transformation study in Egypt where the food expenditure is as high as 70% while for those in Bangladesh it is 62% (Tipple, 1997). Analysing household expenditure on housing can be very tricky because it is difficult to ask the respondent to separate recurrent expenditure from expenditure on transformation. For this study, housing loan repayments or rents are considered as housing expenditures. The amount of money spent on housing is generally lower than for food and transport. Significantly, among the owner-occupiers, the proportion of their income spent on transformation of their houses increases with increases in income, this is similar to the findings in a recent World Bank policy paper on the expenditures for housing where, despite the difference in average monthly income in most countries, the pattern of expenditure on housing is the same (World Bank Policy Paper, 1993).

> *"Spending for housing, like that for most commodities, increases with household income in every urban society. Moreover, as economic development proceeds, the average fraction of income spent on housing in countries at different levels of economic development increases from about 5 per cent to about 30 per cent, before beginning to decrease again. This is, to a considerable degree, because households give increased priority to housing as incomes increase and as food becomes less of a problem. The shift of expenditures towards housing creates the possibility of rapid improvement in housing conditions, as economic development proceeds. (Mayo and Angel, 1993).*

On the other hand, the renters' proportion of income spent on rental decreases with increase in income. Several reasons can be attributed to this pattern. Firstly, low income and high income renter households in the sample generally occupy a non-transformed house, renting for MYR150 to MYR200 per month, depending on the locations. This is a small proportion of income especially for those in the higher income bracket. Secondly, it is a normal perception among the household that a rented house is a temporary accommodation and any increase in income is saved for acquiring a house of their own, a tendency that stems not only from the local culture but also from a universal trend which expects 'a man to provide a house for his family'.

Turner (1976:37) claimed that bank or government agency officials have a tendency to assume and to wrongly suppose the amount of a household's income which would be spent on housing. He disagreed with the formula that a quarter, or even a third of the household income is spent on housing. Some households may spend a higher proportion just to "keep up with the Joneses", while some prefer to save for their children's education or even purchasing other expensive consumer durables. If a household had to spend nearly all their income on food in order to keep alive, transport for the breadwinner to get to work and for the children to get to school, then there is not much left for housing, let alone for transformation of their house. And to suppose, as government officials do, what amount of households' income will be spent on housing is simply not right. In the 1930s, the United States adopted the principle that a month's expenditure on housing should not exceed a week's pay. During the 1960s and 1970s, buyers affordability was based on the ratio of 0.25 (USPWA, 1936). Grimes (1976) suggested the ratio of 0.15 while Landeau (1987) had a much higher ratio of 0.40. Any rule-of-thumb value, such as the common assumption that 20 per cent or 25 per cent of income is available for housing expenditure should be used only as a rough estimation. These values need to be evaluated very carefully based on the prevailing social, cultural and economic circumstances. Until the priorities in expenditure among the low income group are fully understood, the policy makers will continue making the wrong assumptions.

The proportion of monthly income spent on a vehicle loan and transport is also significant. The former has much to do with the acute shortage of reliable public transport between the estates

and the city. Household members would rather use their own transport to get to their several places of work especially for those with multiple sources of incomes, and for going to the market, visiting relatives, etc. By using their own transport, they feel that they can manage their time much better. However, the majority of the children use the school buses and the parents will pay a monthly nominal fare for the service. The transport cost in Table 5.12 will include the bus fares for the children, the occasional fares by household members on the public transport and the cost of petrol for the vehicles.

5.6.1 Income and Wealth

Table 5.13. Annual Income and Expenditure of Households (medians & IQR)

BY HOUSING ESTATE	***Ara***	***Yam***	***Sri***
Household Income	***12,000*** (9,960, 15,600)	***12,000*** (7,600, 15,600)	***17,600*** (10,800, 24,000)
Per Capita Income	***1,850*** (1300, 2,560)	***2,880*** (1,670, 3600)	***3,000*** (1,880, 4,460)
Expenditure on Food	***1,600*** (1,100, 1,600)	***1,080*** (980, 1,800)	***2,000*** (1,600, 2,400)
Expenditure on Housing	***4,200*** (3,600, 6,000)	***3,600*** (2,400, 4,800)	***4,800*** (3,600, 7,200)
Total Expenditure	***10,350*** (8,730, 13,000)	***8,160*** (6,030, 11,570)	***13,680*** (8,210 19,100)
% expecting to be better off next year	21%	36%	12%
BY TRANSFORMATION CATEGORY	***Established***	***Recent***	***Non***
Household Income	***13,800*** (9,180, 21,000)	***13,200*** (9,600, 20,400)	***12,000*** (9,600, 17,400)
Per Capita Income	***2,570*** (1,710, 3,700)	***2,250*** (1,480, 3,600)	***2,900*** (1,740, 3,950)
Expenditure on Food	***4,800*** (3,600, 6,000)	***4,800*** (3,600, 6,000)	***3,600*** (3,000, 5,400)
Expenditure on Housing	***1,600*** (1,010, 1,900)	***1,800*** (1,600, 2,200)	***1,800*** (1,300, 2,400)
Total Expenditure	***10,800*** (7,560, 16,600)	***11,400*** (8,960, 15,000)	***9,430*** (7,550 13,820)
% expecting to be better off next year	22%	11%	28%

In order to maintain comparability for future research, the empirical analysis in this chapter is similar to the study carried out by the CARDO team (Tipple, 1991). The present median income in 1995 among the recent transformers is MYR13,200, and their median length of stay in the house

is 5 years. The non-transformers have lower household incomes but their per capita incomes are much higher than the transformers owing to their smaller households.

The variety of what people will spend is large even within the same income bracket. This is especially so at upper-lower and lower-middle income levels, or at any level at which the households are relatively free of social pressures to conform (Turner, 1976).

Earlier in the chapter, the argument regarding the renters (who are also the non-transformers) is that the proportion of their income spent in rental decreases with increase in income. However, our findings in Table 5.12 and 5.13 show the reverse for non-transformers. These seem rather odd because being non-transformers, the expenditure on housing would not have been related to transformation. Even if they are occupying a transformed house, the transformation would have been carried out by the owners and not by the renters themselves. The expenditure on housing by the non-transformers can only be in terms of the payment of the housing loan or the monthly rental which seem to form a large portion of their income. Either the non-transformers are paying high repayments so as to reduce the repayment period of their loan or higher income households rent more expensive houses than expected.

In the question on percentage expecting to be better off next year, taking into account the cost of living, the non-transformers are more confident than others that their income is likely to be higher the following year but the number that believed so is only slightly more than 25 per cent. These households are still young and their level of education is higher than the rest (see Table 5.14) so the opportunity of doing better is certainly more available than for other households.

5.7 HOUSE TENURE

Table 5.14. House Tenure (%)

	HOUSING ESTATE			*TRANSFORMATION CATEGORY*			
Tenure	***Ara***	***Yam***	***Sri***	***Est***	***Rec***	***Non***	***All***
Owner-occupier	88	56	80	89	91	47	74
Renter	10	27	12	0	0	44	16
Owner's representative	2	12	7	9	6	7	8
Family ownership	0	5	1	2	3	2	2

Seventy-four per cent of the respondents were owners-occupiers and 16 per cent were renters. The highest percentage of the renters in any estate was found in Yam's oldest scheme (27 per cent) where most of the owners had been in their house for more than twenty years so that their mortgage burden was either a thing of the past or had been reduced considerably in real terms. This means that they are able to purchase a second house and have their houses in the low cost housing estates rented out instead. The 47 per cent of the non-transformers who are owner-occupiers included those who have inherited the house and those who bought the house from individuals. Some of these houses would probably have been transformed by the previous owners. Since the current owners have not carried out the transformations, they are categorised as non-transformers. Similarly with the renters, they may live in a transformed house but are still classified under non-transformers.

5.8 HOUSE OWNERSHIP

A household's decision to acquire a house is normally based on two salient factors, i.e., need and demand. The need refers specifically to the household's wish for a house, irrespective of whether it is affordable or not. It is based on the household's preferences. In practical terms housing needs can be defined in terms of affordability (based on income), suitability (based on design and standards) or adequacy (based on the state of repair) (Bourne,1981). However, demand is being determined by the household's income, the proportion of this income the household chooses to spend on housing, and the purchase of the house. This demand or ability to pay determines not only the price, size and the house type, but also its location. Nevertheless, among the low income

group, housing demand is driven not so much by preferences or household size, but more by basic needs, the price of the house, and the ability to pay for it. Even if they can afford a house, some of the low income households are barred from the housing market due to the irregularity and unsteady character of their income (see 3.8 -The Housing Allocation Process in the State of Selangor).

Table 5.15. House Acquisition (%)

	HOUSING ESTATE			*TRANSFORMATION CATEGORY*		
Acquisition	***Ara***	***Yam***	***Sri***	***Est***	***Rec***	***Non***
Bought as non-government servant	83	47	46	63	74	33
Bought as a government servant	7	16	35	31	20	11
Bought from individual	0	7	5	6	3	3
Inherited tenancy	0	4	2	0	3	5
Rent from individual	10	26	12	0	0	48

All the transformed houses are occupied by single households and a majority of the breadwinners are working in the private sectors (formal and informal) while less than a third are working for the government. This shows that, except for those who have no evidence of a regular income, those who are self employed or employed by the private sector are certainly not discriminated against during the allocation process as other studies had claimed (Abdullah, 1995). Although the great majority of households have bought their houses directly from the government, there has been some limited market activity, shown by 12 per cent who have bought from individuals. This is particularly common in the Sri and Yam housing estates. Inheritance is still rare, as the original owners are still surviving except for a few cases in Sri and Yam.

The 11 per cent among the non-transformers who bought the house as government servants and the 33 per cent who bought as non-government servants are most likely to be in the target group with an annual income of MYR9,000 per year. Thus, they have not carried out the transformations due to financial constraints. In general, however, the need to transform their house is not critical as their children are still young.

Table 5.16. Ownership of Another House (%)

	HOUSING ESTATE			*TRANSFORMATION CATEGORY*		
Ownership	***Ara***	***Yam***	***Sri***	***Est***	***Rec***	***Non***
No other house	95	89	89	85	97	95
House in the village	0	7	2	5	0	3
House in another town	5	2	5	7	0	2
House in the same location*	0	2	4	3	3	0

* Same location does not necessarily mean in the same housing estate. What it means is in the same town.

As expected, very few of the households in residence in the estates own a house elsewhere. One of the requirements to be eligible for a PLCHP house is not owning another house elsewhere when the application is being processed. Those that are found to have another house during this survey probably acquired the second house after paying off the first house, or they could have inherited it from the family. None of the recent transformers in the sample, who are generally new owner-occupiers, have another house elsewhere. However the established transformers have a slightly higher tendency to own another house than the non-transformers (15 per cent against 5 per cent). It is very rare for renters to own a house elsewhere and, if they do, they have acquired their house elsewhere prior to the move to the present location.

Table 5.17. Household Size & Composition (medians & IQR)

BY HOUSING ESTATE	***Ara***	***Yam***	***Sri***
Number of people	***7*** (5, 8)	***5*** (3, 6)	***6*** (5, 7)
Number of adults	***3.5*** (3, 4)	***2*** (2, 3)	***2.5*** (2, 4)
Number of children	***3*** (2, 4)	***2*** (0, 3)	***3*** (1, 4)
Dependency ratio *	***7*** (5, 8)	***5*** (3, 6)	***6*** (5, 7)
Expected household size in 3 years	***0*** (0, 1)	***0*** (0, 0)	***0*** (0, 0)
Number of guests per annum	***0*** (0, 0)	***0*** (0, 0)	***0*** (0, 0)
BY TRANSFORMATION CATEGORY	***Established***	***Recent***	***Non***
Number of people	***6*** (4, 7)	***6*** (5, 7)	***5*** (3, 7)
Number of adults	***3*** (2, 4)	***3*** (2, 4)	***2*** (2, 4)
Number of children	***2*** (1, 3)	***3*** (2, 4)	***3*** (1, 3.5)
Dependency ratio *	***6*** (4, 7)	***6*** (5, 7)	***5*** (3, 7)
Expected household size in 3 years	***0*** (0, 0)	***0*** (0, 0)	***0*** (0, 0)
Number of guests per annum	***0*** (0, 0)	***0*** (0, 0)	***0*** (0, 0)

* Dependency ratio is the proportion of children (below 16) plus adults who are not working to the total number of working members in the household (Department of Statistics Malaysia, Wilayah Persekutuan, 1991:13)

Household sizes are broadly similar across the three transformation categories both at the medians and in IQR, although non-transformers have marginally the smallest households with a median of 5. The mean household size in Peninsular Malaysia is 4.87 (Census 1991). Generally the households do not expect any change in size in the next 3 years. However, respondents are generally reluctant to answer questions which are associated with the future.

Guests are not a common feature of life in these selected housing estates. This may be due to the general characteristics of the low cost house with limited number of rooms to accommodate the immediate needs of household members let alone having guests staying for a period of time.

Cost has been the major criterion in the design of low cost housing units. The government's strategy is to maintain the cost at MYR25,000 which is considered affordable to the targeted

group. There have been discussions at MHLG regarding the household size among the low income group but that has never been the determining factor in the actual design of the low cost house with a built up area of only 45 square metres which would only be suitable for a household size of 4. However, the smallest group median household size for this study is 5. So, some households have decided to transform and those who cannot afford to do so will just have to tolerate whatever housing conditions prevail.

CHAPTER 6

CHAPTER 6

HOUSING CHARACTERISTICS

6.0 INTRODUCTION

Despite the elaborate allocation process of the housing units, the two previous chapters have shown that the majority of the residents in the three low cost housing estates surveyed are not from the target group but have annual income much higher than MYR9,000. Having established the socio-economic characteristics of these households, this chapter will now attempt to explore the housing characteristics among the transformers and the non-transformers. The chapter will examine the physical characteristics of the original housing unit after it has been transformed, and the effects of the original designs on the transformation activity. The spatial organisation and the standard of the space enjoyed by the households together form the physical characteristics of the transformed house.

Tipple *et al.*, (1992) had ascertained that, for many households, transformation has the potential, at least economically, of providing a better standard of accommodation for those in the low income group. Yet there are a variety of issues bearing on the housing status of transformed houses and whether such transformations in the low cost housing estates constitute a social problem. Are families in transformed houses more likely to have smaller rooms than before? There are cases where rooms are small but this has reduced the occupancy rate. Are transformers creating low standards in terms of occupancy rates or housing quality relative to other house types? The negative connotations ascribed to transformation, especially among government officials seems to suggest that transformation can provide only a minimal standard of shelter but is not the low cost house designed and built based on the minimal standards too? Why is it acceptable for government to apply minimal standards in their house designs and simply not acceptable for the transformers? The reason given by officials is that government favoured designs are architecturally and structurally handled and supervised by professionals even though they are based on minimal standards. The officials' main worry is that a majority of the

transformation works clearly indicate the lack of involvement by professionals which could cause major problems such as overcrowding, outbreak of disease, outbreak of fire, unexpected increase in demand for electricity and water supply, choked sewerage system, blocked drains, and possibility of structural failure in buildings with no one to be held liable. These have been the main worry among the officials as far as transformations are concerned.

6.1 HOUSING CHARACTERISTICS AND HOUSE VALUES FOR TRANSFORMERS AND NON-TRANSFORMERS

6.1.1 House Size Increment

The nature of transformation in Ara, Yam and Sri differs considerably. A minor transformation for the three housing estates will generally be the extension of the kitchen, which is on the rear. In all cases in Ara and Yam, the original house which is built by the authority remains intact and is usually sandwiched between the front and rear extensions. Extensions on upper floors or side walls (where possible), are relatively expensive and thus undertaken only after 'windfall' gains, mostly in the form of retirement benefits made available to the head of household who had been working in the formal sector. This is the case for Zakaria in Yam who is a retired locomotive driver with the Malayan Railway and Khalil in Sri who used to work in the large cement factory near Rawang.

Case 6.1 The Zakaria Household (established transformer)

59 years old Zakaria and his 47 year old wife Arbiah have 3 children but only one is living with them. The eldest is 29 and the youngest is 23 years of age. Zakaria has received a monthly pension of MYR600 for the last four years and used to be a locomotive driver with Keretapi Tanah Melayu (Malayan Railway). He had a formal education up to Lower Certificate of Education.

It was his wife who applied for the low cost house in Yam and legally she is the owner of the house but he pays for the loan at MYR85 per month. He is happy with the arrangement. He received a gratuity of MYR14,000 from KTM at the end of his service. With that, together with his previous savings, Zakaria carried out his first transformation as soon as they moved in about 5 years ago. The total cost of transformation was MYR19,000 and the

total area gained was 58 square metres. He hired a Malay contractor to carry out the construction.

Zakaria's estimate for the current value of his house is MYR55,000 but if he had to build the same house again at the same quality, the cost would be MYR40,000. He could easily rent his house for MYR200 which is much higher than what he pays for his monthly loan.

Prior to the transformation, Zakaria felt that he need to ask the permission from his neighbours rather than asking for permission from the authority. According to Zakaria, it was not a negotiation and he did not expect the neighbours to pay him, should they decide to extend and take advantage of the walls that he had already built. He also decided to have a fence built as he could not tolerate stray dogs coming into his compound.

(Cost of transformation: MYR328 per square metre).

Plate 6.1 Transformation and Non-Transformation in Yam
Zakaria's transformed house (top), his neighbour's non-transformed house (bottom) with Zakaria's extended wall on the left (see arrow).

Case 6.2 The Khalil Household (established transformer)

Khalil started working at the Associated Pan Malaysian Cement (APMC) factory in Rawang when he was 19 and retired at the age of 55. He does not have any pension. In order to earn a living he became a food vendor by selling 'nasi lemak' (rice cooked with coconut milk, normally for breakfast), at the entrance of the nearby factory. He leaves the house around 6.30am and returns at 10.30am. Then he prepares lunch for his family because his wife works as a part-time shop assistant in town to augment the household income. Khalil's monthly net profit from selling the food in the morning is around MYR400 and his wife earns MYR250.

Before moving into this house, Khalil and his family lived in the accommodation provided by APMC. He had been applying for a low cost house for ten years. His friends advised him to appeal at the State Secretary's office but he was reluctant. As he was approaching his retirement he was worried about not having a house for his family. He then appointed a lawyer to look at his application but unfortunately the lawyer's firm went bankrupt before he could settle the deal with the state government. As soon as he was informed that his application was successful, Khalil decided to pay the whole amount of the housing loan with the gratuity he received at his retirement. Now Khalil is not worried about the repayment and the house is definitely his.

In June 1992, he withdrew MYR36,000 from his Employer's Provident Fund (EPF). On the advice from his friend who is living along the same road, he hired 5 workers from the town of Kalumpang to carry out the transformation of his house. It was a full time job and the men took only 4 months to complete the construction. The total area gained was 64 square metres. These workers had done a satisfactory job in transforming his friend's house not so long ago. With a sigh, Khalil said that was the first and the last transformation he did to the house because he no longer had any savings and he did not expect any of his children to contribute in such matters. He never contemplates leaving the house or moving somewhere else. When asked whether he would rent a similar house the answer was "no". He envisaged that the rent would be beyond his means and would only rent a similar house that had not been transformed.

(Cost of transformation: MYR563 per square metre).

Plate 6.2 Transformation in Sri

The house which Khalil transformed.

Case 6.1 and 6.2 are typical households from the target group with annual total income below MR9,000 per household. Both head of household were fortunate to be offered free accommodation by their respective employers throughout their entire working years. Both have managed to save over the years and on retirement became the proud house owners in two low cost housing estates. Case 6.1 and 6.2 illustrates how transformers who are more than fifty years of age were able to carry out the transformations as soon as they moved in the low cost houses. Financially, the household are not burdened with the monthly repayment and the transformed house meets the need of the household concerned. In fact in case 6.2, the head of household was able to settle the housing loan on day one and was not bothered with the 25 years repayment period. Had both head of households became house owners in their 40s while they were still

working, they probably would have not been able to carry out the transformations immediately due to other family commitments, or they would have their houses rented but still continue living in the accommodation provided by their employers. Prior to the transformation, like any other household, they would normally consult or make enquiries within the neighbourhood regarding the workers that they are going to hire. The estimated value of the transformed house in case 6.1 and 6.2 is MYR55,000 and MYR70,000 respectively; not bad for an investment in a low cost housing estate!

Habitable rooms in this research consist of living room, dining room, bedrooms and kitchen. Only the bathrooms and the toilets are excluded. The kitchen is considered as a habitable space for this study because it is not strictly related to food preparation. It is normal for the women of the house to receive their guests in the kitchen and they consider the kitchen as the centre of the house. It is also used by members of the household having their siesta, children doing their school assignment at the kitchen table, and babies sleeping in their hammocks that are hung from the kitchen's roof beam.

Table 6.1. Total Area of Habitable Rooms (square metres)

	HOUSING ESTATE			*TRANSFORMATION CATEGORY*		
	Ara	***Yam***	***Sri***	***Est***	***Rec***	***Non***
Original	***49*** (49, 49)	***46*** (46, 46)	***49*** (49, 49)	***49*** (48, 49)	***49*** (48, 49)	***48*** (47, 49)
Current	***65*** (48, 78)	***64*** (45, 87)	***81*** (49, 117)	***84*** (65, 110)	***80*** (65, 104)	***48*** (47, 49)

Among the three housing estates, Sri has the most gain in habitable area because of the generous space available on a large plot. However, those in Ara and Yam are unlikely to achieve more than what has been shown in Figures 6.1 and 6.2 (Plans of Transformed Houses) due to the constricted plots. In Ara and Yam where the basic unit for each household is 58 square metres on a 80 square metres plot and 60 square metres on a 88 square metres plot respectively, the new total built up area after transformation is nearly 70 square metres.

There is not much difference in the gain of habitable area between the established and the recent transformers since the majority of the transformers in the housing estates surveyed carry out the transformations only twice. Very few of the owners-occupiers carry out the transformation activities incrementally over the years (Table 7.1 - Cost of Transformation Phases). Among those established transformers who have made two phases, the first transformations are generally minor constructions, i.e., extending the front porch or improving the kitchen areas. It is then only during the second phase of transformation that the serious building activities really occur. This may be because, by that time, members of the household would have settled in and would have sorted out the space that they need.

However, as transformation becomes common, it may be expected that more households will decide automatically to transform their houses so as to improve their housing conditions. So, in the case of the recent transformers who have disposable income, the first phase tends to be a major construction followed by only minor improvements in the second phase. The phases have median costs of MYR6,500 and MYR2,060 respectively (Table 7.1).

Table 6.2. Area Gained Through Transformation (square metres)

BY HOUSING ESTATE	***Ara***	***Yam***	***Sri***
Original total built area	***52*** (52, 52)	***49*** (49, 63)	***52*** (52, 52)
Total area gained	***17*** (0, 31)	***18*** (0, 42)	***33*** (0, 68)
Total built area	***68*** (51, 82)	***70*** (49, 91)	***85*** (52, 120)
BY TRANSFORMATION CATEGORY	***Established***	***Recent***	***Non***
Original total built area	***52*** (51, 52)	***52*** (51, 52)	***51*** (49, 52)
Total area gained	***37*** (18, 63)	***25*** (17, 57)	none
Total built area	***87*** (69, 115)	***84*** (69, 109)	***51*** (49, 52)

In table 6.2, total area gained for the constricted plots in Ara and Yam is around 20 square metres at the median which is 35 per cent of the original area while that in Sri is over 30 square metres (which is 63 per cent) because of the larger plots. On the other hand, the established and the

recent transformers total area gained is about 67 and 62 per cent of the original area respectively. Established and recent transformers appear to add similar amounts in the total built area and at the 75th percentile the total built area of the housing unit is 110 square metres or so, which is more than twice as large as the non-transformer dwellings.

6.1.2. Housing Quality

The floor area per person is an indicator of the adequacy of living space in dwellings where a low value is a sign of crowding. It is defined as "the usable living space per person in square metres". The mean reported floor-area per person in 52 cities in UNCHS (1993) was 18 square metres with a range from 4 to 69. In Malaysia the reported floor area per person is 18.6 square metres (UNCHS, 1993:25). As expected, the non-transformers and residents of Ara (being closest to the city), had the least space per person, i.e., 10 square metres at the median. Those in Sri and Yam had 14 square metres per person (Table 6.3). As mentioned earlier, for the purpose of this study, the kitchen was included as a habitable/ living space because this was the part of the house that most activities took place. Had the kitchen been excluded, the floor-area per person would have been much lower.

The other measure for crowding is the number of persons per room. According to the Housing Indicators Programme (UNCHS, 1993), the floor area per person and the number of persons per room measures are highly related to each other but the former is considered more accurate and "policy-sensitive". In Malaysia, the number of persons per room is 1.67 (UNCHS, 1993:25). Oddly enough, the occupancy rate for this particular study did not indicate a serious problem of overcrowding even among the non-transformers. This shows that transformations have occurred not as a response to overcrowding among the existing households. Transformations certainly did not result in an increase in population in these housing estates which had on the average been occupied for five years. We would expect that Ara, being closest to the city, would be showing some indications of a problem of crowding. Its location would be most ideal for those rural-urban migrants seeking temporary accommodation among the relatives who are established city dwellers, but the findings of the survey did not indicate such multi-habited accommodation being

provided. Either the households interviewed were not providing the correct information, thus giving the impression that their housing unit consisted of only a single household, or perhaps it is still too early for the Ara households to be having such problems. Only time will tell. As it stands, Ara's occupancy rate is slightly higher than Sri and Yam but none of them show more than 1.2 persons per habitable room at the median.

Table 6.3. Measures of Occupancy of Households

BY HOUSING ESTATE	***Ara***	***Yam***	***Sri***
Habitable rooms occupied by household	***5*** (4, 5)	***5*** (4, 5)	***5*** (5, 6)
Total habitable space occupied (square metres)	***65*** (48, 78)	***64*** (45, 87)	***81*** (49, 117)
Habitable space occupied per person (square metres)	***10*** (7, 13)	***14*** (12, 17)	***14*** (10, 21)
Occupancy rate (persons per habitable room)	***1.2*** (1, 2)	***1*** (0.8, 1)	***1*** (0.8, 1)
BY TRANSFORMATION CATEGORY	***Established***	***Recent***	***Non***
Habitable rooms occupied by household	***6*** (5, 6)	***5*** (5, 6)	***4*** (4, 5)
Total habitable space occupied (square metres)	***84*** (65, 110)	***80*** (65, 104)	***48*** (47, 49)
Habitable space occupied per person (square metres)	***15*** (12, 22)	***14*** (10, 18)	***10*** (7, 14)
Occupancy rate (persons per habitable room)	*1 (mean)* ***1*** (0.8, 1.2)	*1 (mean)* ***1*** (0.8, 1.4)	*1 (mean)* ***1*** (0.8, 1.5)

Table 6.3 shows a major gain in habitable space among the established and recent transformers against non-transformers (75 and 66 per cent respectively), and the gain in number of habitable rooms is 50 and 25 per cent. However, the occupancy rates does not differ at all. This seems to suggest that household size increases in parallel with the number of rooms added or that rooms are added in order to maintain occupancy rates at one person per room and that these rooms are generally larger in area than the original rooms. So area per person has increased by 40 or 50 per cent while occupancy rate remains constant. None of the rooms in the transformed houses surveyed are being sub-divided by the households, for reasons stated below.

In a terraced house, the back room will be sandwiched due to the extension at the rear. This particular room will inevitably face the problem of having a window which does not allow natural ventilation and daylighting. To the household, this appears to be not critical because they can use electric fans and artificial lighting. Not surprisingly, the ownership of electric fans among the households is almost 100 per cent. For the extension in the front facing the main entrance, the households prefer to have one large room rather than physically subdivide the space. Should the room need to be subdivided, this is normally achieved by arranging the furniture within the space or simply using a curtain.

Oxman and Carmon (1986) found that the new rooms in Israel tended to be 45 per cent larger than the originals. However, in Egypt (Tipple:1991), new rooms tend to be similar in size to the originals and the transformers subdivide their original habitable space resulting in an increase in the number of rooms. As a result, transformers have more rooms per person than they would have if they had not transformed. In the findings for Bangladesh (Tipple:1997), the habitable rooms in 70 per cent of the houses surveyed are much smaller in area than the original rooms but are more varied even on a very constricted site. This creates a reasonable occupancy rates (2.3 to 3.3 persons per room) but habitable space per person is greatly reduced. The findings in Bangladesh confirmed Tipple's preliminary hypothesis that transformations lead to the increase in density of local population but not to an increase in occupancy rate. He also concluded that the low income group in Bangladesh's urban setting prefer several small rooms to one or two large ones and this can only be achieved through transformations.

It can be argued for Malaysia whether the officials from the local authorities will question the presence of these small rooms as evidence of improved housing condition for the main household because these rooms may not meet the health and safety requirements in terms of daylighting, natural ventilation, drainage and fire exits. On a constricted plot like that of a terraced house, it seems impossible to achieve all these requirements in terms of health and safety and, at the same time, try to maintain privacy. In terms of the amount of habitable space gained, the established transformers seemed to do better than the recent transformers. However, despite the health and safety issues, the proponents of the transformation process are convinced that the

occupancy rates are considerably reduced even in the most densely populated housing estates (Tipple, 1997). It is also believed that improved privacy could be achieved by having several rooms rather than one large one.

6.2 INTENSITY OF DEVELOPMENT

Table 6.4. Plot Ratios and Floor Space Indices (Medians and IQR)

BY HOUSING ESTATE	***Ara***	***Yam***	***Sri***
Plot area (square metres)	***79*** (79, 79)	***108*** (108, 111)	***320*** (300, 379)
Original house area (square metres)	***51*** (51, 51)	***49*** (49, 63)	***52*** (52, 52)
Total house area (square metres)	***68*** (51, 82)	***70*** (49, 91)	***85*** (52, 120)
*Original floor space index	***0.65*** (0.65, 0.65)	***0.44*** (0.44, 0.45)	***0.16*** (0.14, 0.17)
*Current floor space index	***0.80*** (0.65, 0.92)	***0.58*** (0.44, 0.81)	***0.23*** (0.17, 0.38)
Percentage change in transformers' floor space index	***33*** (00, 60)	***37*** (00, 86)	***63*** (00, 131)
BY TRANSFORMATION CATEGORY	***Established***	***Recent***	***Non***
Plot area (square metres)	***196*** (108, 315)	***280*** (106, 320)	***120*** (108, 320)
Original house area (square metres)	***52*** (51, 52)	***52*** (51, 52)	***51*** (49, 52)
Total house area (square metres)	***87*** (69, 116)	***84*** (68, 109)	***52*** (51, 52)
*Original floor space index	***0.29*** (0.17, 0.45)	***0.19*** (0.16, 0.60)	***0.44*** (0.16, 0.65)
*Current floor space index	***0.53*** (0.34, 0.84)	***0.42*** (0.29, 0.79)	***0.44*** (0.16, 0.65)
Percentage change in transformers' floor space index	***73*** (35, 192)	***48*** (33, 110)	***00*** (00, 00)

In table 6.4 the original floor space index is calculated using the original house plans obtained from the National Housing Department, showing the original covered floor space as a proportion of the plot area. The current floor space index is the ratio of current total area of house surveyed over plot area. The calculation for floor space indices for Ara, Yam and Sri housing estates are quite straightforward since the plot for each housing unit is clearly defined.[1] The highest change in the floor space index is in Sri with a change of 63 per cent at the median from an index of 0.16 to

[1] Problems in calculating these indices will arise if these houses do not have official plots. Should such cases be found in future transformation studies in Malaysia then the average plot size from each transformed house type will have to be used to give some indication of the plot size of a non-tranformed house (Tipple, 1995).

one of 0.23. The percentage change in Ara and Yam is only half of what Sri had achieved since both are on constricted plots. The available open space within the plots in Ara and Yam is quite limited which reduces the change in index to less than 40 per cent at the median.

Between the established and the recent transformers, the highest percentage is with the former as they would have carried out their transformation quite extensively. The established transformers have achieved the highest change in the floor space index with 73 per cent at the median (with third quartile of 192) which shows high levels of development but not necessarily over-development. This is the impression gained on the ground, walking round the areas. The spaces for public use are still very generous and appear to be under-utilised. However, from the site plans there are plots designated for various public and commercial buildings e.g., community hall, religious hall, nursery, shop houses, etc. None of the above have been built except the hostel for underprivileged children in Sri. It can be assumed that the government is hoping that the residents in each housing estate will organise among themselves to have all these facilities constructed as part of their community development project. However, in Sri, instead of constructing a new building, the residents have partially demolished the timber house and transformed it into a Chinese temple. The area that was once a kitchen has now turned into a prayer hall complete with elaborate altar while the original timber structure on stilts remain untouched.

Plate 6.3 A House Transformed Into A Temple in Sri

Table 6.5. Plot Ratios and Floor Space Indices for Recent Transformers* (Means, Medians and IQR)

	Ara & Yam *(smaller plot)* *n=18*	***Sri*** *(larger plot)* *n=17*
Plot area (square metres)	*119 (mean)* ***108*** (76, 113)	*331 (mean)* ***320*** (297, 333)
Original house area (square metres)	*55* ***51*** (51, 63)	*52* ***0*** (0, 0)
Total house area (square metres)	*80* ***74*** (69, 88)	*102* ***94*** (72, 124)
Original floor space index	*0.6* ***0.6*** (0.4, 0.7)	*0.2* ***0.2*** (0.16, 0.12)
Current floor space index	*0.8* ***0.8*** (0.6, 0.9)	*0.3* ***0.3*** (0.21, 0.40)
Percentage change in transformers' floor space index	***38*** (26, 49)	***95*** (42, 147)

* Recent transformers are those who carry out the construction from January 1993 to April 1995.

For Table 6.5, the recent transformers of the 3 housing estates are divided into 2 groups, i.e., small plot versus large plot. Within the small plot category, the increase is only 38 per cent to an index of 80 and only slightly more at the third quartile. However, in the large plot the increase is a large 95 per cent at the median and 147 per cent at the third quartile. Considering that these are recent transformers and they have large plots, the increase in Sri will undoubtedly continue and it would be interesting to see the increase in the future. In the case of Ara and Yam, the increase in the future is unlikely to be significant as there is hardly any room to manoeuvre.

Where large plots are the norm, the coverage which households achieve is lower than those with small plots. There must be a balance between the amount of space which a housing estate is likely to provide and the amount of space in which a household can operate. This would result in an optimum floor space index which could be used as an indicator of what level of transformations are likely happen and which would show the most efficient plan for housing estates.

6.2.1 Area for Commercial Space

At the time of the survey, there were three shops, a homeopathic clinic and a chilli paste producer in Ara, two shops in the old Yam scheme, a beauty salon, a licensed marriage bureau, and a restaurant (which only operates on Sunday morning) in Sri. The occurrence of these 10 commercial spaces among the established transformers constitute only 11 per cent of the total number of houses surveyed and the commercial use is 30 per cent of the total area of the houses. The owners of the sundry shops in Yam said that their businesses had been severely affected since the opening of the newly built supermarket just a few miles down the main road. The main problem is that they just could not compete with the supermarket's prices. Both the shopkeepers felt that they will survive for a couple of years but are thinking of closing down soon. "It's not worth the effort and the money," sighed one of them. None of the recent transformers indulged in any commercial activities within their houses. This is simply because recent transformers are generally younger than the established transformers (Table 5.3) and they usually have permanent jobs with regular income.

Case 6.3 The Lai Household (recent transformer)

25 years old Ms Lai runs a hair dressing and beauty salon in the house that was bought by her mother. However, both she and her mother have never stayed in this house. Instead they live with her eldest brother a few miles away.

Ms Lai has turned the ground floor into a beauty salon and she rents the two rooms upstairs to both of her assistants. Each pay MYR100 per month. She not only provides employment but she also provides rooms for rental. She hands the rents to her mother and at the same time settles the monthly housing loan of MYR150 per month on her behalf. After all she makes a profit of approximately MYR3,000 per month. Business is good, her hair dressing and beauty salon is the only one in the estate and the locals do not have to go to the nearby town just to have a haircut.

The contractor who carried out the transformation job was a close friend of her eldest brother. The transformation was carried out as soon as the mother got the key to the house from the authority. Her mother withdrew her savings and financed the MYR18,000 construction works. Unlike all the transformed houses in Sri, the contractor dug out approximately 0.5 metres of earth in order to achieve the 2 metres headroom for the ground floor.

Plate 6.4 A Beauty Salon in Sri

Case 6.4 The Bahari Household and Their Neighbour (established transformer in Sri)

Bahari who is 42 years old works with the National Electricity Board for 15 years as a technician. He has two children aged 11 and 7. He moved into the house in 1991 and, two years later, he hired a contractor to enlarge the kitchen area and improve the front staircase. He had some savings and the transformation activities cost him MR6,000.

It was his wife who nagged him to enlarge the kitchen. She has been making and selling cookies for the past 4 years and in January 1995 she was successful in getting the contract to supply cookies and traditional cakes for the morning and afternoon teas at the newly opened Serendah Golf Club for a year.

Their next door neighbour had also benefited from the newly opened Golf Club. They had been offered the contract to wash all the towels used by the club members. They too had to

enlarge their kitchen so that they could house two commercial size washing machines. There is no need for them to purchase any automatic dryers as most of the drying is done in the glorious sunshine. Bahari jokingly said, this is the only house in the estates with hundreds of yellow coloured towels hanging in their compounds. It is like huge buntings but all in one colour!

Case 6.5 The Wong Household (established transformer)

Mr Wong is a mechanic and is 37 years old. He has stayed in the house for four years. Prior to this, he and his family was staying with his parents. Before moving in, he contacted a contractor and, with his savings, agreed to carry out the transformation which cost him MR40,000. Since his house was on a corner plot, he has a huge compound which can easily park more than 10 cars.

Plate 6.5 Wong's House in Sri

To augment his income, he works overtime and during the weekends, he will drive the cars from the workshop and park them in his compound where his wife will clean and polished them and she would deliver the cars back to the respective owners once the job is completed.

The estimated value of his house is MR90,000 which he considered less than the market value. Cost to rebuild will be MR60,000. When asked what will he do with the house if he had to leave, he said he will sell it with a reasonable profit. He is not sentimental about the house. To succeed in business is more important than tying oneself to the house.

Case 6.6 The Hee Household (established transformer)

Along the same road with Mr Wong lives another mechanic, Mr Hee who is 45 years old. He too has lived there for 4 years. In 1993, he spent MR8,000 to extend the kitchen area and paved the entire compound.

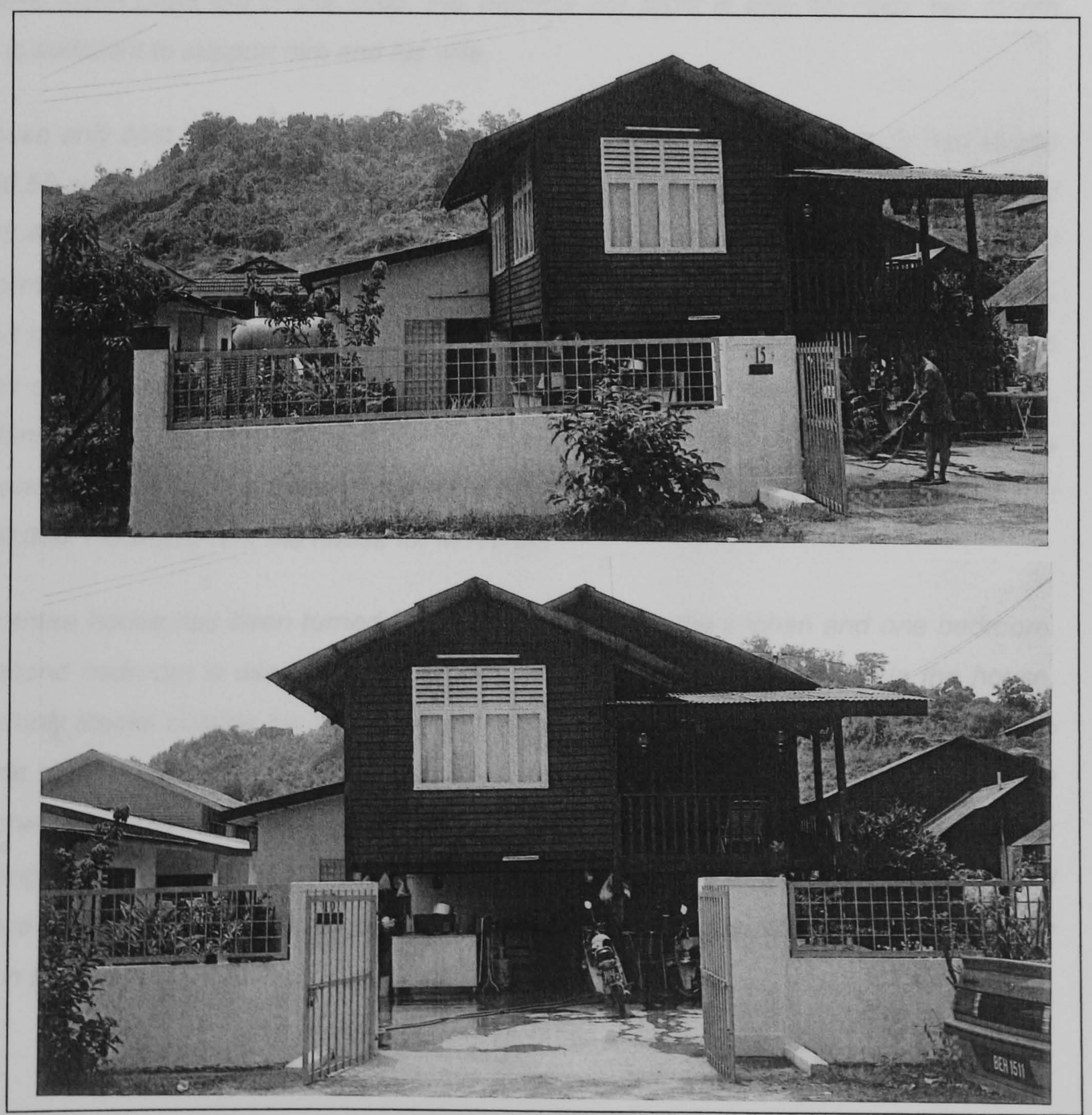


Plate 6.6 A Cafeteria in Sri

His wife, mother-in-law (widowed), and three daughters run a cafeteria which serves breakfast on the weekdays, breakfast and lunch during the weekends. Mr Hee goes to the market very early in the morning, when he returns from the market, he will set the tables, then by 9 o'clock in the morning, he is off to the workshop. When he gets back in the evening, he will do the clearing up and clean the paving area. Mr Hee has not enclosed the area below the first floor. It is just left open so that on a rainy day the customers could have their meals there and on a fine day they can have their meals on the paved area.

Case 6.7 The Chin Household (established transformer)

Chin is 68 years old and has lived with his wife in the present house for more than 20 years. They have 6 children but none are staying with them. Their eldest daughter is 38 years old and their youngest son is 23. Chin only had a Chinese education until he was 13. He started as a shopkeeper only 8 years ago. There are only two shops in the Yam housing estate and the other shop is owned by a much younger Chinese family. Chin does not make much profit out of the shop. His monthly net profit is only MYR500 per month which is sufficient to support him and his wife.

His house only cost him MYR5,000 when he first bought it in 1969 and he only had to pay MYR50.50 per month for the loan. Now he only pays the annual land tax of MYR30 and MYR38.40 for the yearly assessment. It was in 1983 when he decided to carry out his first transformation which cost him MYR6,300 and the total area gained was 53 square metres. He had a contractor from the nearby town of Ulu Yam Lama to do the construction. His children contributed in financing the transformation and he used some of his savings too. Chin thinks that the current value of his house is MYR30,000 and according to him that is the average price around the area but if he had to build a similar house, it will only cost him MYR10,000. He would rent the house for MYR160.

Chin's entire house has been turned into a shop except for the kitchen and one bedroom. The second bedroom is used as a storeroom. Whatever cannot be stored in the house, Chin simply stacks outside his house, even though it appears to encroach upon the public road. He and his wife normally have their meals and watch the television in the evening in the kitchen but most of the time, during the day, Chin is contented to sit behind the counter managing his little shop and serving his customers. At the time of the interview, Chin had his niece to assist him in the shop. She comes early in the morning and returns to her house in the evening.

Plate 6.7 A Shop in Yam

Case 6.5 illustrates an established transformer whose household is only an elderly couple living on their own who have settled their housing loan. None of their children is staying with them. They had transformed their house in order to start a business and like the Sumini's household (Case 7.6), the children helped to bear the cost which could be considered as an act of filial obligation. Public low cost houses are certainly not designed to cater for a non-residential activity. If owner-occupier of a two bedroom house on an intermediate lot needs to use the house for income generating activities, they are forced to sacrifice their habitable space, i.e., the living and dining area and at times even the bedroom as in the case of the Chin household. Habitable space is unimportant for the Chins, use values in terms of conducting the business well for their customers are their main concern.

The space designated for commercial use tends to be the room with the main entrance facing the road. The shops selling a range of food and general household goods are usually 4 to 6 metres wide and slightly more than 3 metres deep. The practitioner who runs the homeopathic clinic has converted his living room into a general waiting area for the patients and one of the rooms into the consultation room. The owners of the beauty salon, restaurant and the licensed marriage bureau in Sri have all walled up the open space below their timber houses that are originally built on stilts.

The only extensive commercial space that had been created is that of the chilli paste producer in the Ara housing estate whose house is on the corner lot (Case 8.2).

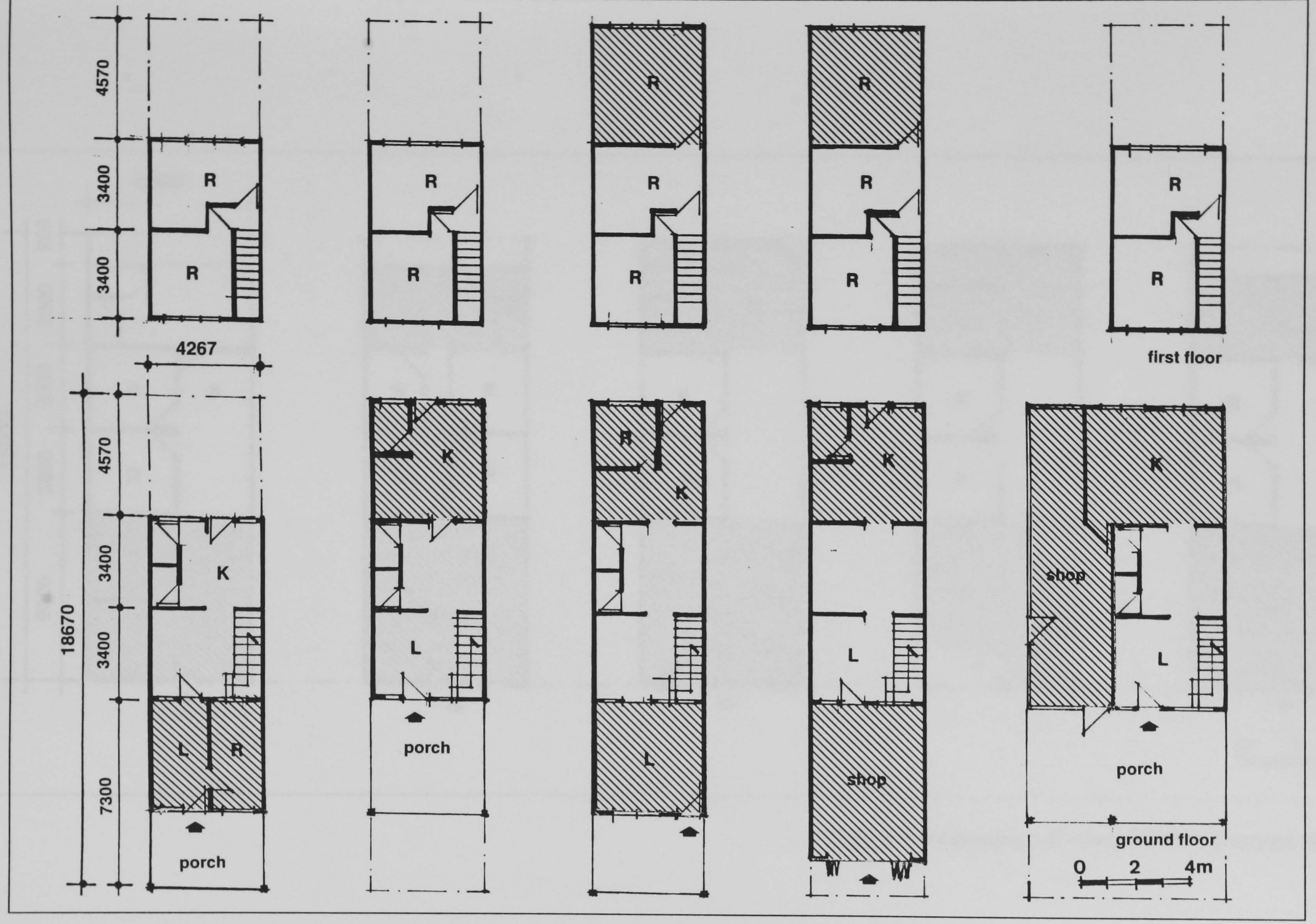


Figure 6.1 Examples of Plans of Transformed Houses in Ara

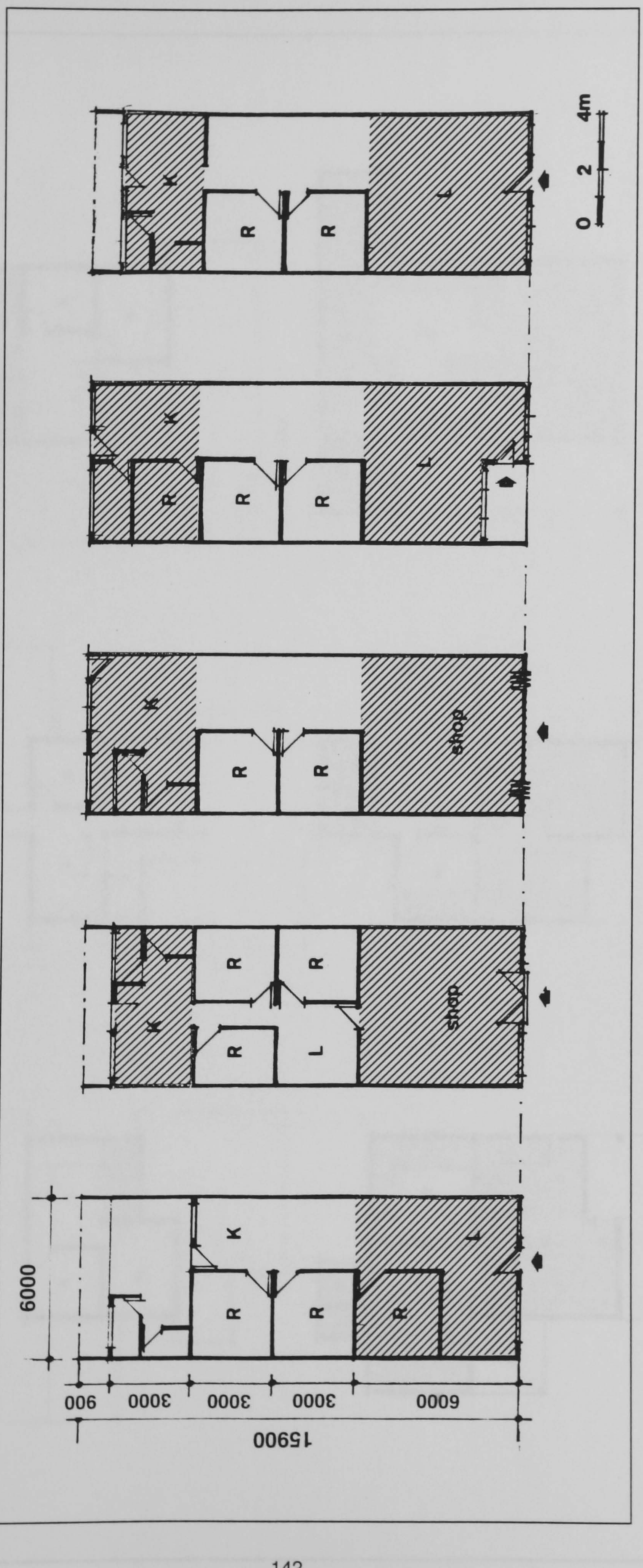
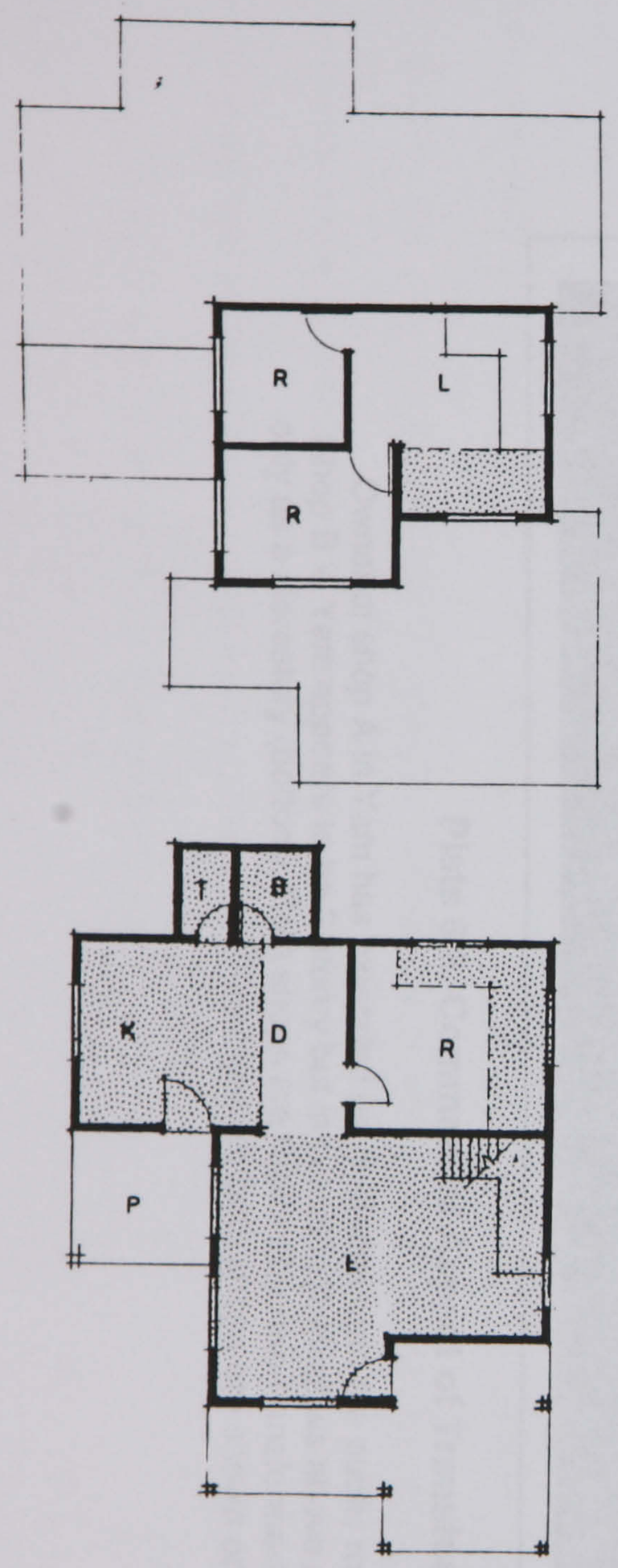
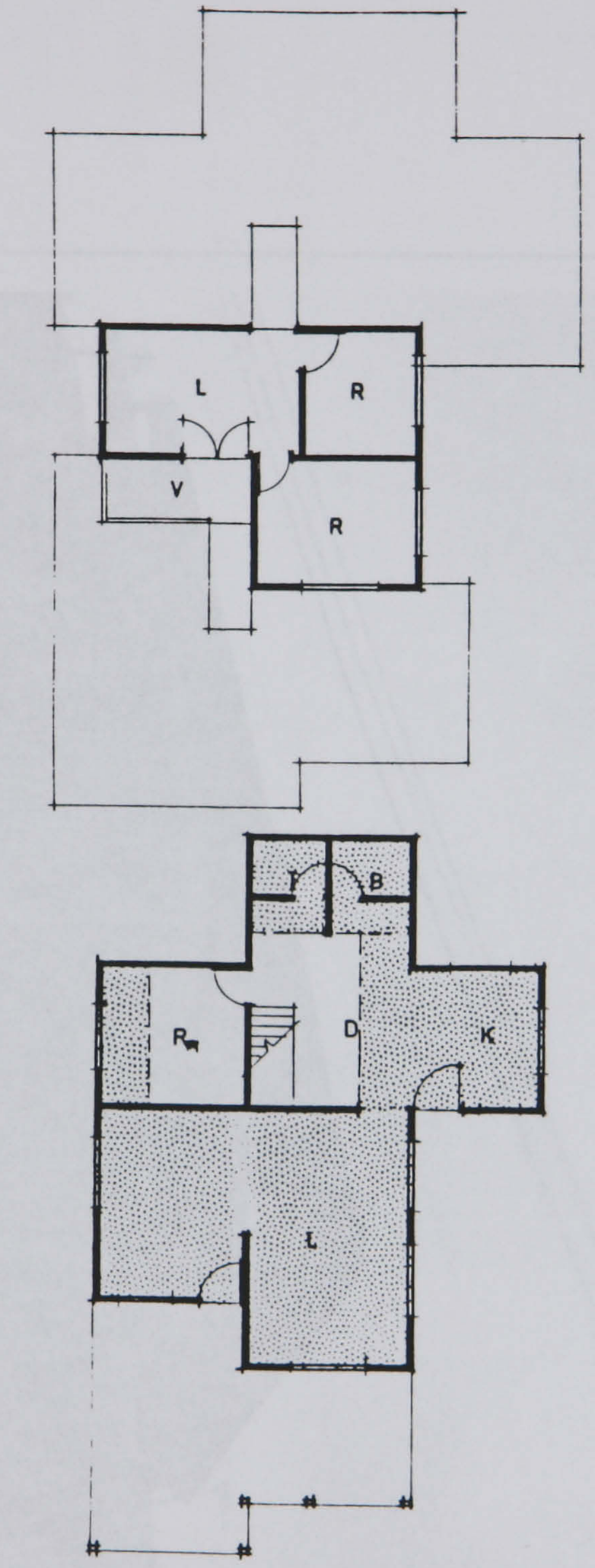


Figure 6.2 Examples of Plans of Transformed Houses in Yam





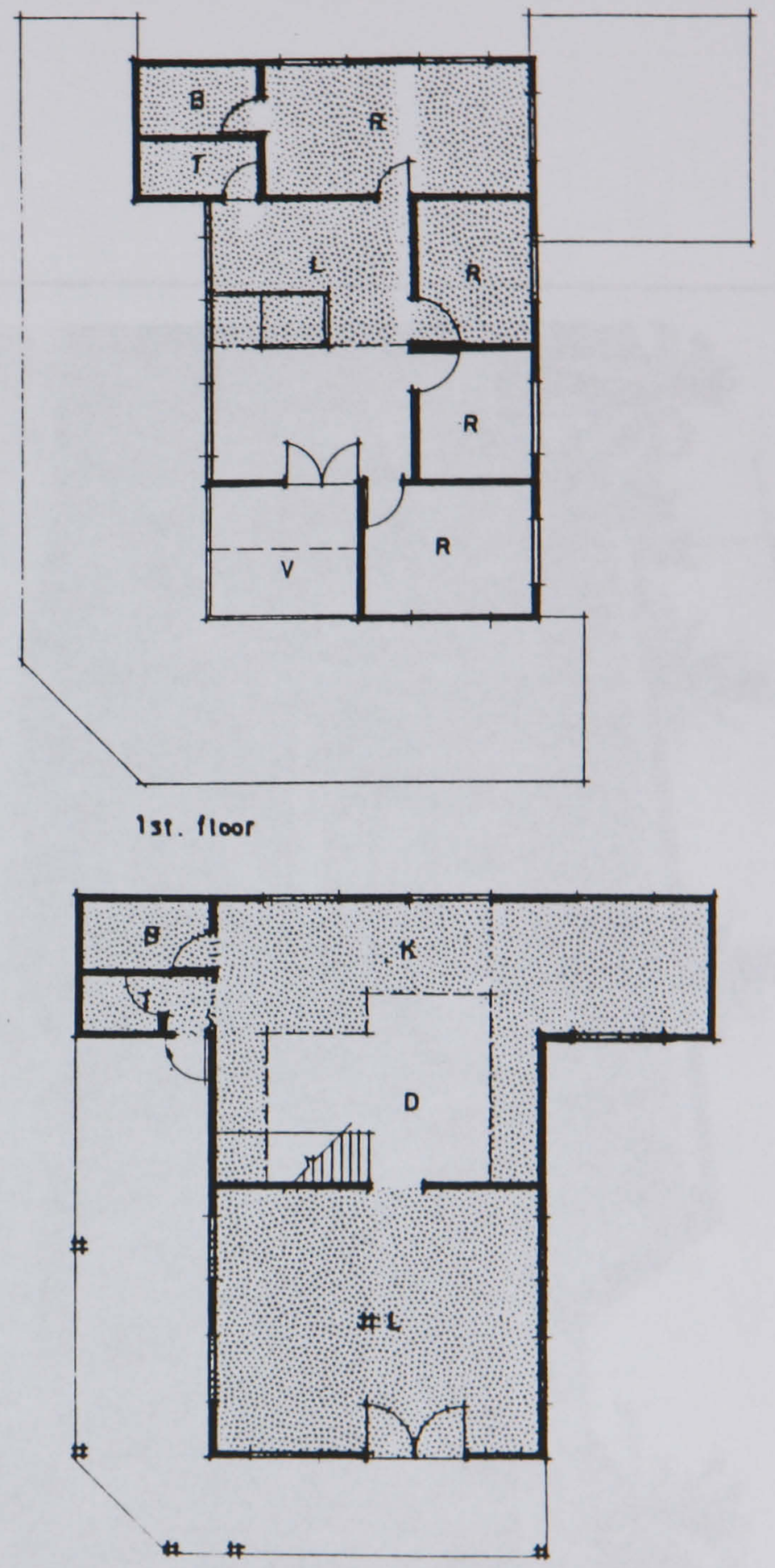


Figure 6.3 Examples of Plans of Transformed Houses in Sri

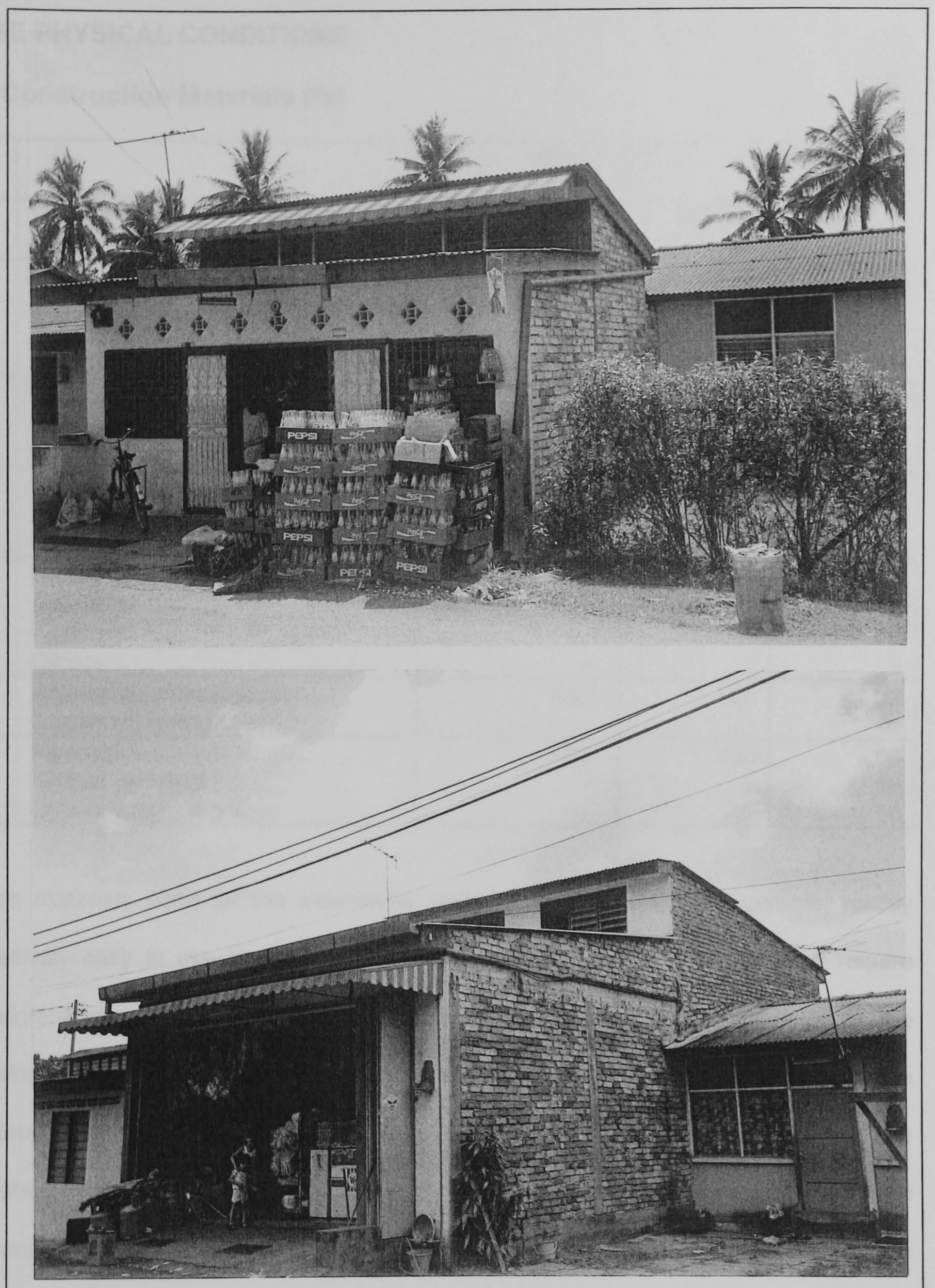


Plate 6.8 Commercial Aspect of Transformation

Owner of shop A in Yam has extended his business onto the public road (top). Shop B in Yam appears to be 2 storey but in actual fact windows above are used only as a clerestory (bottom). Both shops are flanked by non-transformed houses. Floor plans for both shops are shown on pp 142.

6.3 HOUSE PHYSICAL CONDITIONS

Table 6.6. Construction Materials (%)

		Non-transformers	*Transformers*	
Location	Materials	Original house	Original house	Extended house
Wall	Cement blocks	28	19	14
	Bricks	7	11	83
	Prefab panel	26	21	-
	Timber	39	49	4
Roof	Zinc roofing	-	-	2
	Asbestos roofing	93	89	83
	Roof tiles	7	11	15
Floor	Cement render	100	100	74
	Floor tiles	-	-	14
	Others (Marble, timber)	-	-	12
Ceiling	No ceiling	54	40	6
	Asbestos	46	60	79
	Plywood	-	-	9
	Others	-	-	6
Window	Adjustable glass louvers	100	100	92
	Casement window	-	-	8
Door	Plywood	100	100	66
	Timber panelled	-	-	18
	Others (c/w iron grilles)	-	-	16

Most common materials used for the extensions' walls are bricks which are durable, readily available, relatively easy to use in the construction and the households feel that they require minimum maintenance, especially compared to cement blocks and timber. Asbestos is the common roofing materials used in the low cost houses. Apart from trying to conform with the overall characteristics of the houses within the neighbourhood, the transformers still use the corrugated asbestos sheets for the roofing material as they are very light in weight and cheap compared to concrete roof tiles. Very few households used corrugated zinc sheets for their roof. If they are used it will only be to roof a minor part of the house, i.e., a lean-to roof over a kitchen located in the rear of the house. These roofing materials would have been "salvaged" from nearby factories or building sites as cited in Case 8.2. Due to the oxidisation of zinc, resulting in an uneven hue of reddish pink, most local authorities do not approve of its use of for new building works or even for extension works for that matter.

Plate 6.9 Construction Materials

In Sri, the timber constructions are mostly on the first floor while those on the ground floor consist of reinforced concrete columns with plastered brickwalls (top). Roofing materials are generally a mixture of corrugated asbestos sheets and concrete tiles. The height to which this house has been raised allows the original roof to be extended in this manner. The original pitch of the roof has not been altered (bottom).

Only public low cost houses built recently have ceilings. In a tropical climate like Malaysia, the temperature of the rooms located directly below the roof is quite high and this is aggravated by the absence of the ceiling material. Thus, it is very common for transformers to provide ceilings to their houses so that the temperature in the affected rooms, which are mostly bedrooms, is more tolerable for the household. The transformers in the double storey houses who have not bothered to construct the ceiling were those who rarely used the rooms upstairs, preferred not to invest in such materials, and spent most of their time on the ground floor.

Building materials used in the transformation activities are generally of high quality and construction is of high standards. This reflects the owner-occupiers' confidence that their transformation activities will not be demolished despite only 22 per cent of the established transformers and 26 per cent of the recent transformers having actually bothered to apply for permission from the respective local authorities (Table 8.6) when carrying out their first transformation.

Our findings support the notion that transformation is a means towards the improvement of the physical conditions of the housing unit in the low cost housing estates. But this is contrary to the authorities' general assumptions which predict that all these illegal extensions and alterations will result in sub-standard conditions in the housing estate itself and eventually will turn it into a "slum". Out of the 32 houses in Yam Phase 1 housing estate which began in 1969, seventy-five per cent have been transformed but the external physical characteristics certainly does not have the image of a "slum". As a matter of fact everything seems to look orderly with efforts in landscaping by the households in residence. Very few households have breached the building regulations and there are no rooms smaller than the original sizes planned. The general view among the households is that "if we extend our houses, we make sure we get larger rooms." In the users' opinion, to have smaller rooms than those originally built defeats the whole purpose of transformation. The only breaches in regulations that are common are related to ventilation and daylighting. Once the air well is roofed and the remaining area on the rear of the house is walled up, there is no way for the middle room to have its window on the external facade in order to gain daylighting. Instead the windows open into the enclosed kitchen area.

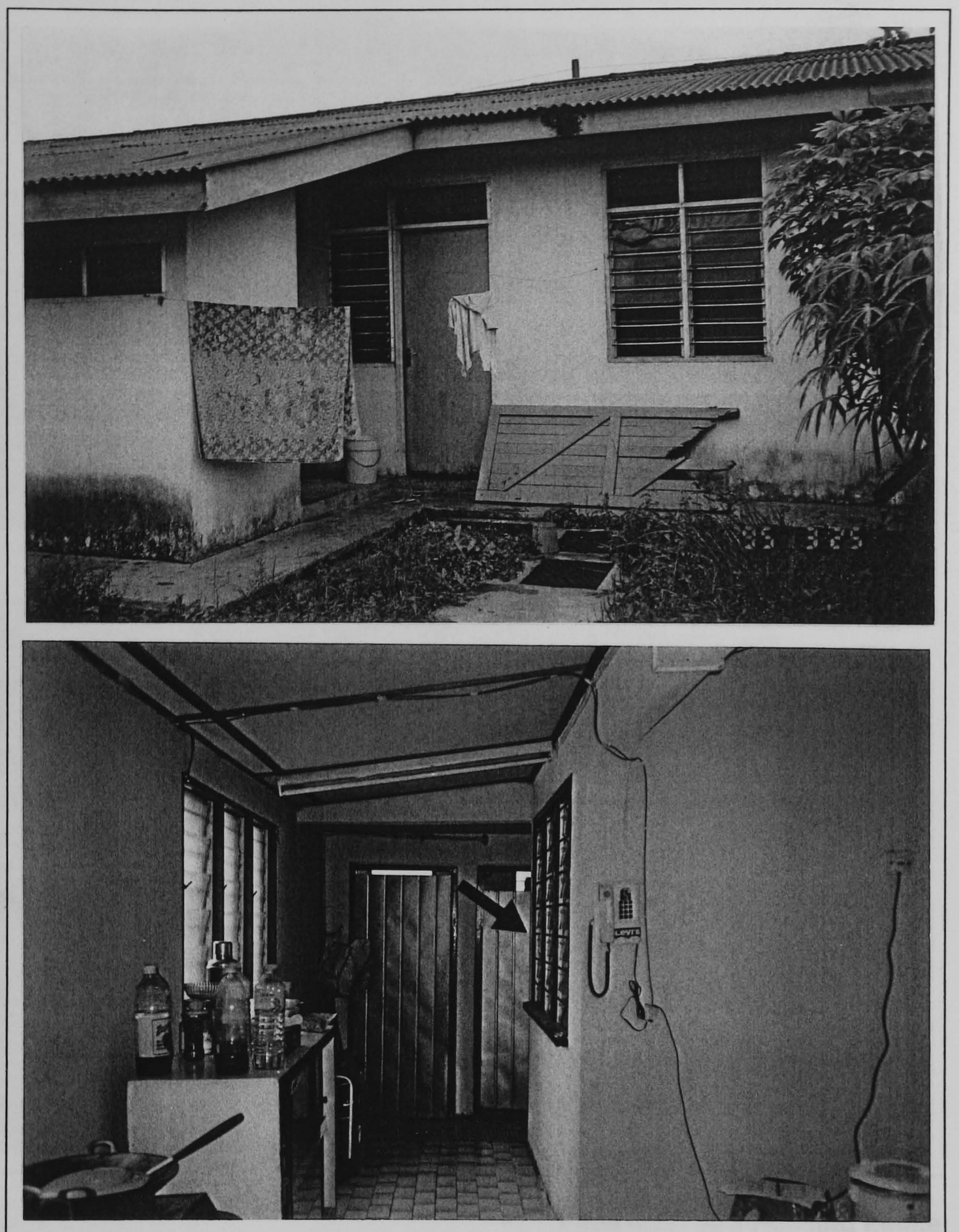


Plate 6.10 Location of Previous and New Windows in Extension of Kitchen
The original windows before the kitchen is extended (top).
The new windows after extension, depriving daylight to the room on the right (bottom).

There is no major increase in terms of sewerage as most of the houses still keep to one bathroom and one toilet per household and each have their own septic tank which is emptied twice a year.

Plate 6.11 Ara Housing Estate
Does transformation create the image of a "slum"?

Plate 6.12 Transformation and Non-Transformation

Yam Housing Estate (top), Sri Housing Estate (bottom).

Plate 6.13 The Stark Contrast Between Transformation and Non-Transformation in Ara

The difference in housing condition due to transformation. The 'once' anonymous neighbourhood of formal, public sector housing is slowly disappearing.

Table 6.7. Original Building Condition

WALL(%)		*ROOF(%)*		*FLOOR (%)*	
No cracks	96	No evident leaks	90	No cracks	99
Minor cracks	4	Evident leaks	10	Minor cracks	1

Table 6.8. Transformed Building Condition

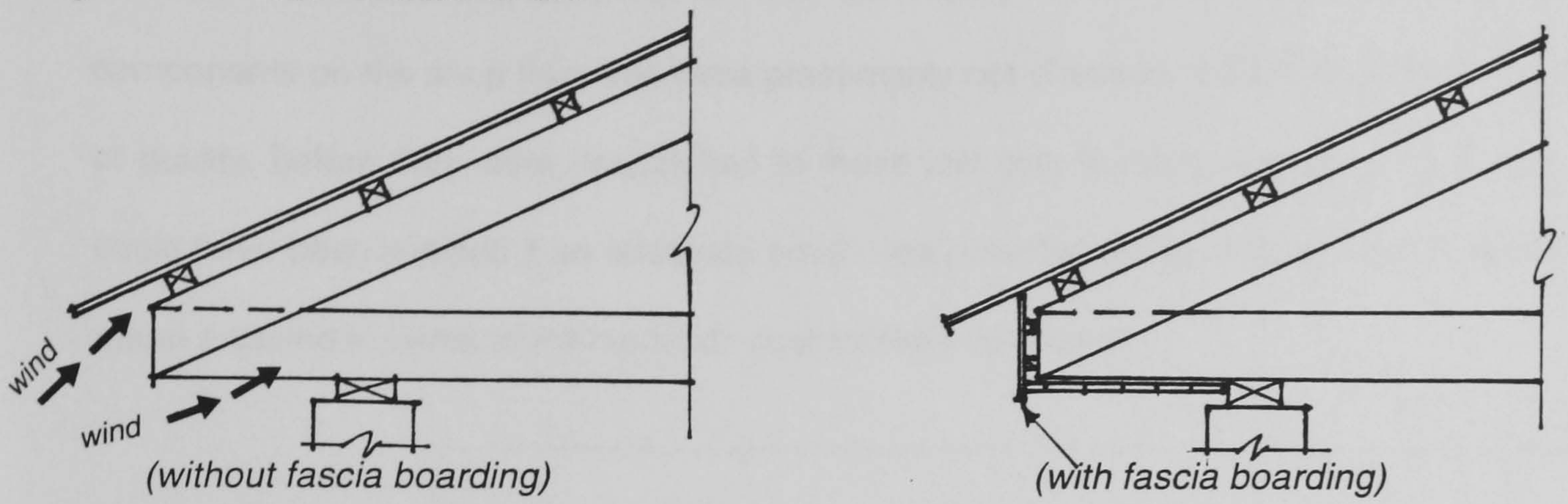
WALL(%)		*ROOF(%)*		*FLOOR (%)*	
No cracks	91	No evident leaks	92	No cracks	100
Minor cracks	9	Evident leaks	8	Minor cracks	0

The original building conditions are generally sound. Minor cracks on the walls and on the floors are the results of poor sand to cement ratio in the plaster or bad workmanship. These problems are common in the Yam and Sri housing estates where the original constructions is mostly insitu.

"How can there be cracks on our walls," quipped one of the respondents in Ara, "every building component of this house is prefabricated. Should a crack occur, then it will be a major structural crack and the entire housing estate will have to go (collapse)," the respondent answered confidently. As for the minor cracks on the walls of the transformed houses, these are due to problems similar to those faced in the original construction, which are mainly due to bad plastering.

Most of the transformers have managed to overcome early problems of roof leakage by installing fascia boards and soffits on the underside of the roof eaves. This problem is only evident in the Sri housing estate as the original houses do not have fascia boards. The absence of the fascia and the soffits will appear to be really problematic only during heavy torrential rain accompanied by strong wind during the monsoon season. As a matter of fact this is not a problem of roof leakage, it is more of defects due to poor roof detailing.

Figure 6.4 Roof Details in Sri



There have been general complaints by the occupants of the low cost housing estates in the local tabloids and also by the public in general about the poor workmanship of these low cost houses. However, from the data collected on physical problems for Ara, Yam and Sri, more than 90 per cent of the respondents are satisfied with the general construction and workmanship of their houses. Furthermore, according to the study carried out by MHLG in 1993, seventy-five per cent of the respondents in the urban low cost housing estates in the state of Selangor were satisfied with the overall quality of workmanship. Therefore, based on the findings from both of the surveys, it could be concluded that the physical quality of urban low cost housing units in the state of Selangor is satisfactory. From the MHLG's survey, 77 per cent and 46 per cent of the respondents were dissatisfied mainly with matters concerning the plan of the house, i.e., the size of the kitchen provided and the size of the living room respectively.

In this study, the dissatisfaction among the respondents especially in Ara and Sri was mainly due to poor detailing. In the case of Ara, the external plywood flush doors on the rear and front entrances do not have any form of protection from the tropical weather, nor does the main timber staircase leading to the entrance of each housing unit in Sri. When exposed to weather over a period, the plywood door and staircase start to rot (Plates 6.10, 6.13 and 6.14). Most of the windows for low cost housing units have fixed timber louvers at the higher levels which are meant for natural ventilation. Unfortunately, the angles at which these louvres are being fixed does not provide enough overlap to prevent rain from coming in particularly on a windy day. Since all doors and window components for these houses were prefabricated in the factory, the actual problem is

not due to the poor workmanship on site but mainly to the production of the prefabricated components on the shop floor that were presumably not checked, tested, and controlled in terms of quality, before they were despatched to these low cost housing projects. The above defects could have been avoided if an adequate porch was provided for each housing unit and this could mean a saving in terms of maintenance cost for the households.

Plate 6.14 The Original Timber Staircase in Sri

Original timber staircase starting to rot because of inadequate roof cover. Rainwater from the gutter above drops directly on to timber staircase during a downpour since rainwater pipes are not provided.

Plate 6.15 Examples of Roof Over Staircase in Sri

New roof over original timber staircase provided by household. Some even replace original timber staircase with concrete.

CHAPTER 7

CHAPTER 7

COST OF TRANSFORMATIONS

7.0 INTRODUCTION

This chapter sets out to analyse the cost of the different transformation phases. As stated in the earlier chapters, the households generally carried out the transformation immediately after they moved in. The costs of first transformations are not expected to be high, because heads of households would inevitably face some financial constraints at this stage of their stay in the low cost houses. Once they were settled and had sufficient funds from family savings, the household planned an elaborate second phase of transformations. In most cases, this would be the final phase, particularly in the terraced houses as there is little or no space available for them to extend into. A majority of the recent transformers have not seriously started with their second phase of transformation but for those who have, the trend is not similar to that of the established transformers. The cost of the second transformations among the recent transformers seemed to be smaller than the first; the reverse of the established transformers. Perhaps there were few 'windfall' gains among the recent transformers or may be the 'big spenders' have not started their second transformation projects yet. There was only one occurrence of a house with the third phase of transformation in Ara, on an end lot, and one in, Sri but none in Yam. With few exceptions in Sri and Ara, the total cost of transformations for both phases will not exceed the cost of purchasing the initial house from the government, which is MYR25,000.

7.1 COST OF TRANSFORMATION PHASES

Table 7.1. Cost of transformation phase in Malaysian Ringgit (Medians & IQR)

BY HOUSING ESTATE	*Ara*	*Yam*	*Sri*
Phase 1	***3,210*** (0, 7,220)	***2,690*** (0, 6,480)	***6,450*** (0, 19,800)
Phase 2	***5,670*** (1,930, 13,000)	***4,270*** (2,300, 9,650)	***12,420*** (9,870, 35,660)
Total cost of transformations i.e. (Phase 1 + Phase 2)	***3,430*** (0, 11,280)	***2,937*** (0, 7,200)	***6,700*** (0, 21,000)
Mean total cost of transformations	**7,130**	**4,700**	**14,110**

BY TRANSFORMATION CATEGORY	*Established*	*Recent*
Phase 1	***7,490*** (3,480, 17,390)	***6,500*** (3,230, 13,980)
Phase 2	***10,750*** (6,740, 18,380)	***2,060*** (1,520, 5,920)
Total cost of transformations i.e. (Phase 1 + Phase 2)	***9,270*** (3,850, 20,862)	***6,500*** (3,230, 15,520)
Mean total cost of transformations	**15,020**	**12,770**

All costs are adjusted to 1995 values.

Median total cost is not the sum of medians phase 1 and phase 2. This is because not all houses in phase 1 carry out the second transformation.

Table 7.2. Total Area Gained in Phase 1 & 2 in square metres (Medians & IQR)

BY TRANSFORMATION CATEGORY	*Established*	*Recent*
Phase 1	***35*** (18, 58)	***25*** (16, 58)
Phase 2	***59*** (24, 78)	***33*** (17, 56)

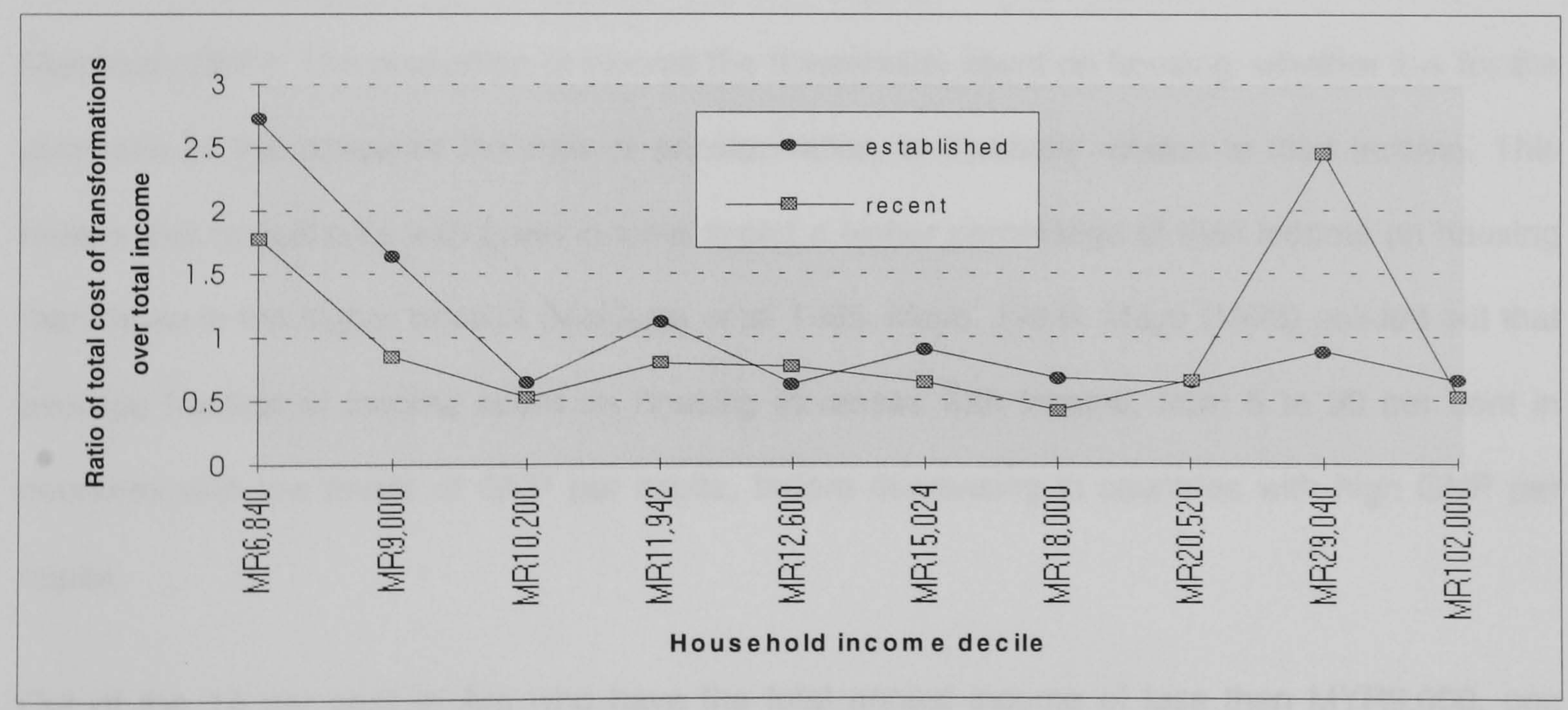
Looking at the costs for Phase 1 and Phase 2 for the established transformers, the total area gained during the first transformation is much smaller than in the second transformation (provided that the building materials used were not "salvaged" from somewhere as this would drastically reduce the overall cost of transformation). However, for the recent transformers, the total area gained during the second phase of transformation is much larger and has a lower cost because 50 per cent of the transformations have been done by self-help (Table 8.4).

The total spending on transformations is higher among the established transformers, with a median of about MYR9,200, than the recent transformers, whose median is MYR6,500. The

overall median of MYR8,840 is slightly less than the one year's qualifying income (MYR9,000) for the low cost house but the third quartile of MYR19,400 shows that some have spent a very large amount, especially in the Sri housing estate.

The mean spending on transformations in Ara, Yam and Sri are MYR7,000, MYR4,700 and MYR14,000 respectively. If we assume that all the houses in the three housing estates will eventually invest in transformation activities at the increment level, that will give a total of MYR917,000 (Ara), MYR925,900 (Yam) and MYR5,768,000 (Sri). The total transformation investment will then be MYR7,610,900 which is almost equivalent to the expenditure the government would allocate for another public sector low cost housing project (Appendix 1 - Details of Housing Project). The interesting factor is that all low cost houses are originally designed without the intention of being drastically transformed and yet the amount spent in transformations could generate considerable investment in the local housing industry. The discussion of these findings on the implication of the housing policy will be in Chapter Nine.

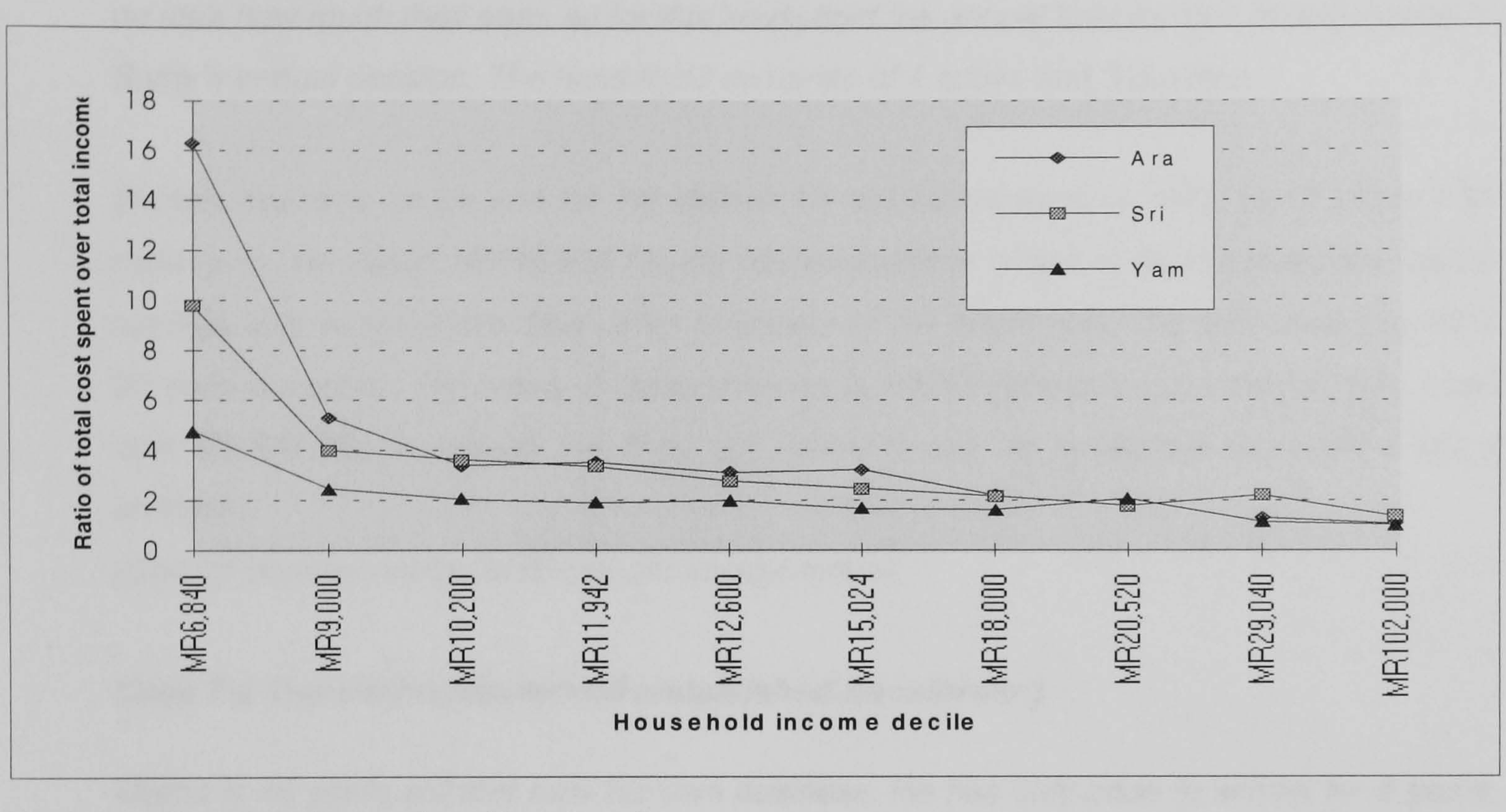
Figure 7.1 Cost of Transformations



As stated before, the established transformers tend to have spent more than the recent transformers. Established transformers with an income lower than MYR9,000, tend to spend almost three times their earnings on transformation while the recent transformers have spent an

average of twice their earnings (see Table 8.5 - Source of Finance for the Transformation Process).

Figure 7.2 Actual Total Cost over Total Income by Income Decile for Housing Estate



Total cost = Cost of purchase + Cost of transformation

Figure 7.2 shows that our data conform to the expected spending pattern for housing from Malpezzi (1990). The proportion of income the households spent on housing, whether it is for the purchase of the house or the cost of transformation, is inversely related to total income. This means that households with lower income spend a higher percentage of their income on housing than those in the higher bracket (Malpezzi *et al,* 1985; Mayo, 1993). Mayo (1993) pointed out that average fraction of income spent on housing increases with income, from 5 to 30 per cent in countries with low levels of GNP per capita, before decreasing in countries with high GNP per capita.

Out of the 14 per cent in Ara who have the total annual income of less than MYR9,000, one particular household had a current annual income of only MYR1,536 but had paid MYR41,667 as the total cost and another household with a current annual income of MYR7,200, has spent MYR66,980 as the total cost. These two households in Ara have the highest ratio of total cost over total income. Otherwise the ratio of total cost over total income for the rest of the households interviewed tend to be two to four times in Ara and Sri and twice in Yam.

Case 7.1 The Samy Household (established transformer)

Samy has been a pensioner for 23 years and is 78 years old. He has never been to school and was a gardener at the Kuala Lumpur City Hall. Now he gets an annual pension of MYR1,536. Most of the household expenditures are being paid by his adult children. He has no idea how much they earn, so for this household the annual total income is only based on Samy's annual pension. The household comprise of 4 adults and 3 children.

Samy's house is on an end lot. He started his transformations in 1991, i.e. 2 years after moving in. He spent MYR9,000 on the transformations which is mostly from his lifetime savings plus contributions from other members of the household. The total area gained is 37 square metres. The value of Samy's house is MYR55,000 and according to him, it will cost MYR45,000 to rebuild. He does not intend to sell his house but will pass it to his children.
(Cost of transformation: MYR243 per square metre).

Case 7.2 The Muthu Household (established transformer)

Muthu is 46 years old and runs his own business. He has only been to school for 6 years. His business profit is MYR7,200 annually. He started his first transformation in 1991, the second transformation in 1993 and the third in 1995. Each phase of transformation cost him MYR16,000. His source of finance is from savings. The total area gained is 107 square metres. Muthu thinks the value of his house is around MYR150,000 which he considers high, and it will cost MYR90,000 to rebuild. He too would pass the house to his family and has no intention of selling it at all.
(Cost of transformation: MYR450 per square metre).

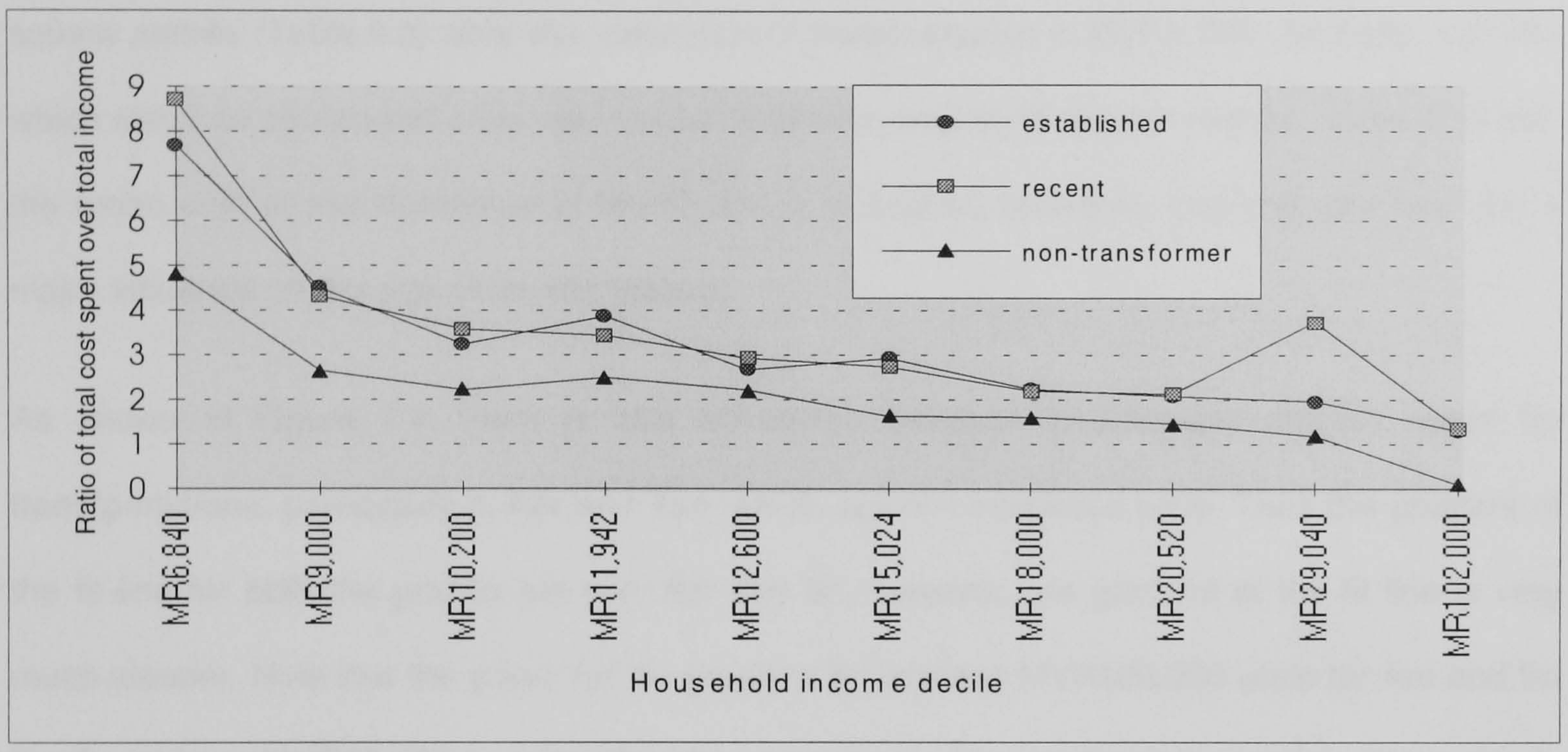
Plate 7.1 Transformation in Ara (End Plot)
Samy's house (top) and Muthu's house (bottom).

Similar to case 6.1 and 6.2, case 7.1 and 7.2 are households who officially fall within the target group in the Ara housing estate. Their declared total annual income is below MR9,000 and yet they are able to carry out transformation costing twice their income for each phase as in case 7.2. The total cost of purchase plus transformations is 9 times the total income. Clearly, for those with declared income of less than MR9,000 the amount that they have spent on total cost is enormous.

Both Samy and Muthu have been staying in the former squatter areas of Ara throughout their life before moving into these low cost houses. Many of their old friends are still living in the nearby squatter areas and are hoping that those low cost houses already completed in the new phase

would be made available to them. The house may be small but it gives them the sense of security. Muthu may have spent almost MYR48,000 but the total area gained is less than the Samy household because of the cost of high quality finishes used, i.e., marble and quarry floor tiles.

Figure 7.3 Actual Total Cost over Total Income by Income Decile for Transformation Category



Total cost = Cost of purchase + Cost of transformation

When the cost of purchase and the cost of transformations are added together, there is considerable difference between transformers and non-transformers in amount spent but very little difference in the spending pattern. Transformers whose income is lower than MYR9,000, would appear to have spent nearly 8 to 9 times their annual total income but in actual fact, these households state of affairs maybe similar to those presented in case 7.1 and 7.2. Non-transformers whose income is MYR9,000 or lower than MYR9,000, would spend around 2.5 to 5 times their income just to pay the cost of the purchase.

7.2 THE EFFECT OF PLOT SIZE ON SPENDING

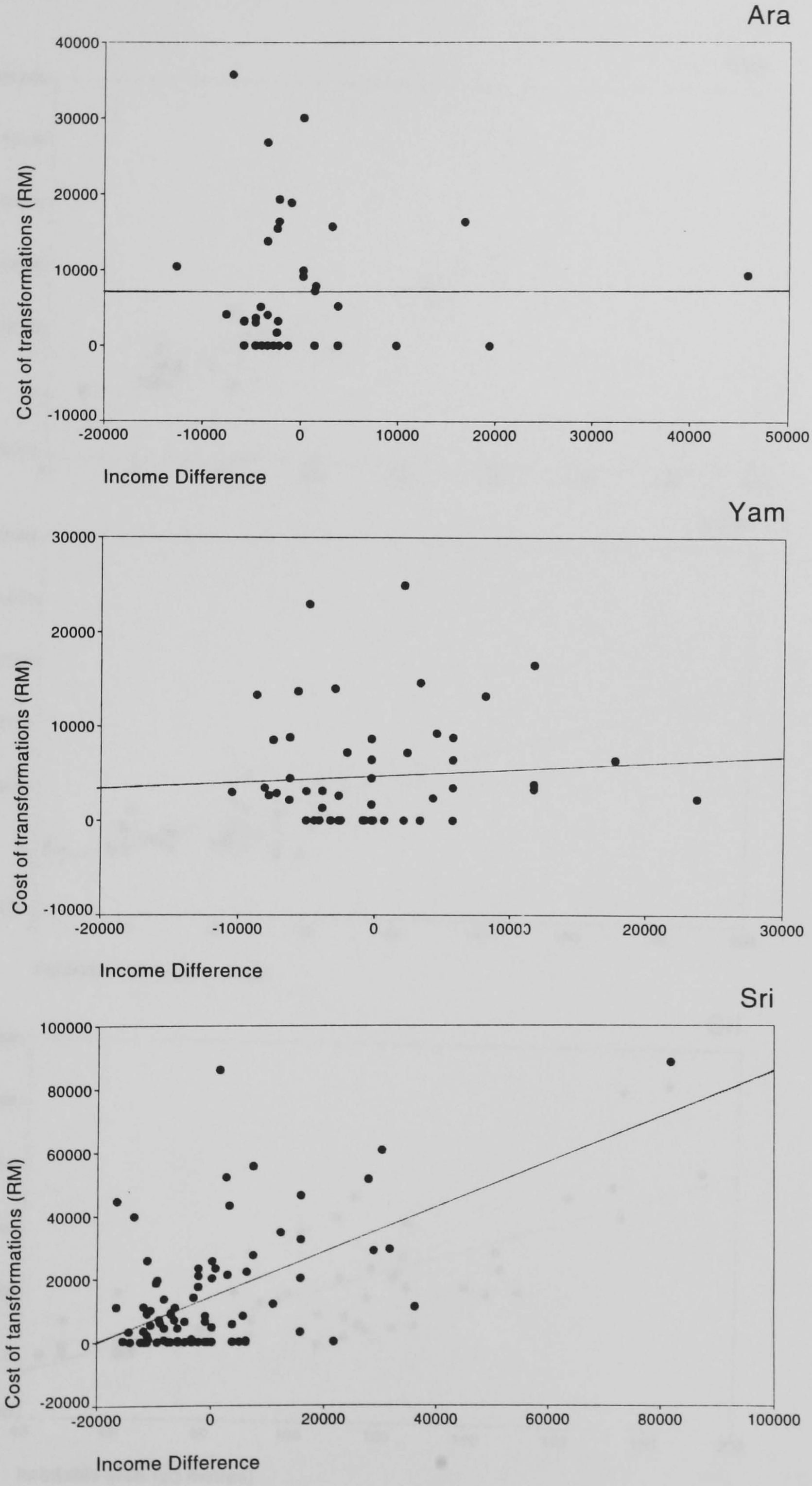
As pointed out by Seek (1983) extension is influenced by the physical characteristic of the housing property. The size, structure, and layout of the housing unit are found to be important determinants of the cost in extension works. Remembering that Sri plots are large, Figure 7.5 clearly shows that the ability to transform is strongly influenced by the plot size, i.e., the larger the

plot, the larger the gain in habitable area tends to be. The median total habitable area occupied in Sri is 81 square metres (Table 6.3) while the mean cost of transformation is MYR14,000. Yam which is the oldest among the three housing estates surveyed (more than 20 years old) and has a constricted plot, has limited transformation. Here, the scale of transformation is not large when matched against the long time available. The median total habitable area occupied in Yam is 64 square metres (Table 6.3) while the mean cost of transformation is MYR4,700. Similarly, with Ara which also has constricted plots, the median habitable area is 65 square metres (Table 6.3) with the mean cost of transformation of MYR7,000. It is evident, therefore, that plot size has had a major influence on the size of transformation.

As shown in Figure 7.4, there is little correlation between income and amount spent for transformations, particularly in Ara and Yam which are on constricted plots. Thus the gradient of the fit line for both the graphs are very flat. For Sri, however, the gradient of the fit line is very much steeper. Note that the y-axis for the graph of Sri reaches MYR100,000 while for Ara and Sri it only reaches MYR40,000 and MYR30,000 respectively. The scatterplots together show clearly that the large plots in Sri are very influential in allowing larger and more expensive transformations; in not constricting household's ability and willingness to improve their housing conditions.

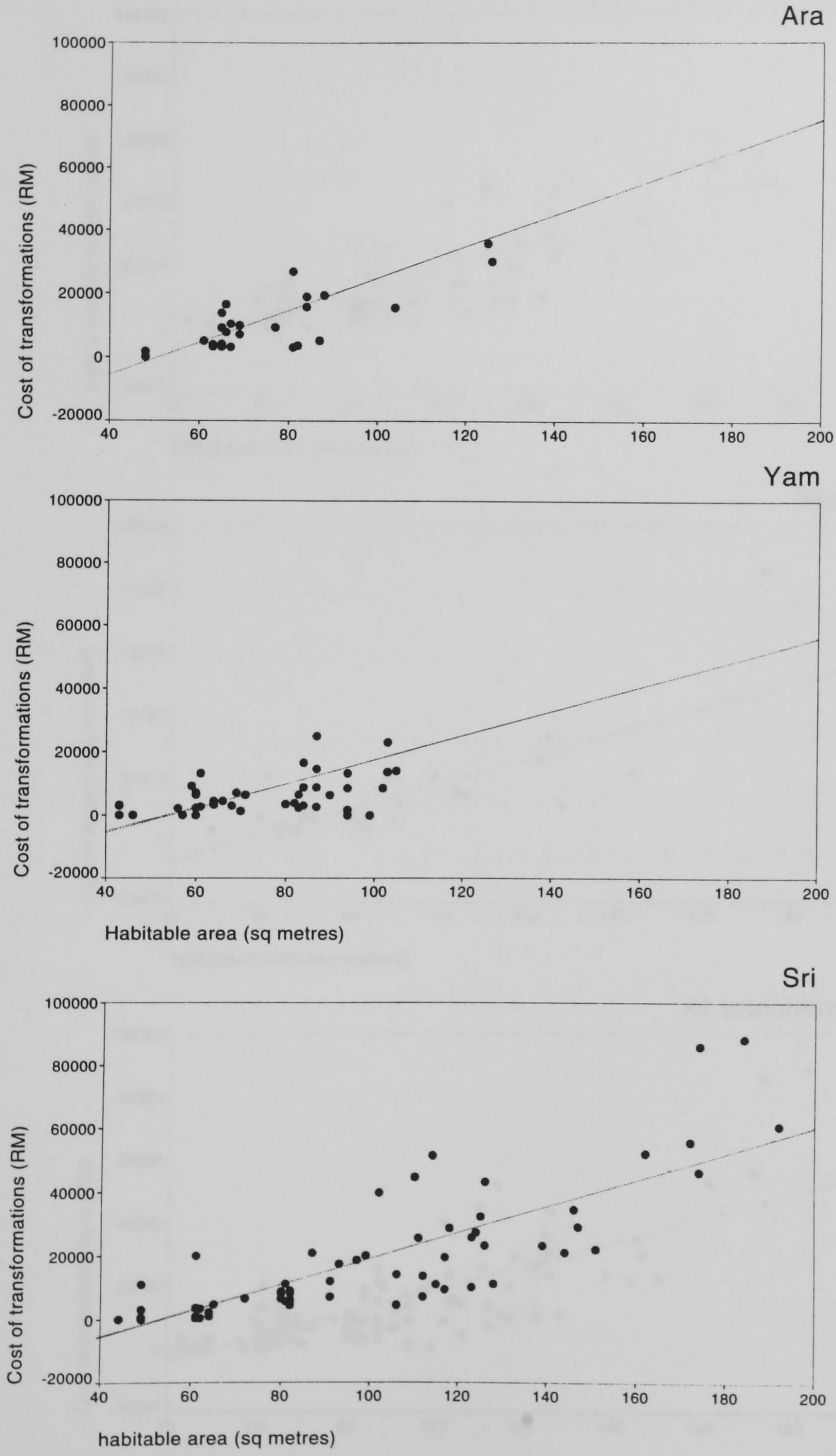
There is not much difference in the total habitable area now occupied between the established and the recent transformers (Figure 7.6). Both now have around 80 square metres. The only difference is the mean cost of transformation which is MYR15,000 for the established transformers and MYR13,000 for the recent transformers. It is likely that the trend of transformation among the recent transformers will eventually be similar to that of the established transformers as time passes.

Figure 7.4 Scatterplot of Cost of Transformations Against Income Difference in the Housing Estates



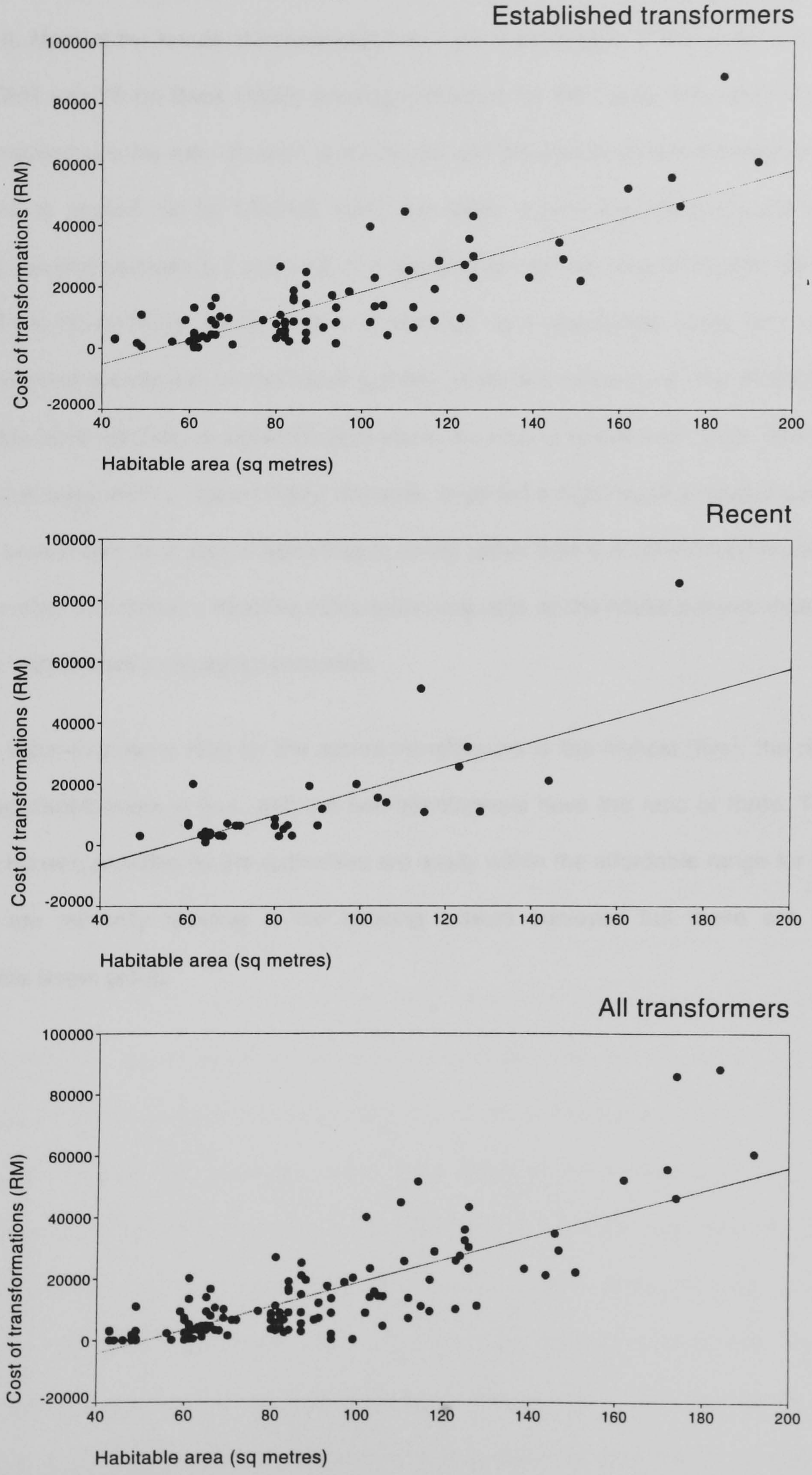
Note:
All costs adjusted to 1995 value.
Income Difference = (Household Total Income - Mean Income for Housing Estate).
Mean income for Ara, Yam and Sri is MYR14,168, MYR12,269 and MYR20,177 respectively.

Figure 7.5 Scatterplot of Cost of Transformations Against Habitable Area in the Housing Estates



Note: All costs adjusted to 1995 value.

Figure 7.6 Scatterplot of Cost of Transformations Against Habitable Area Among the Transformers and Non-Transformers



Note: All costs adjusted to 1995 value.

7.3 INCREASE IN HOUSE VALUE AND COST

For this section the head of household was asked to give the value of his or her house and the cost of rebuilding it. Most of the heads of households had a clear perception of the value of their houses. The UNCHS and World Bank (1993) housing indicators for the house price-to-income[1] ratio was then compared with the ratio of value of the house and the annual household income. In the international study carried out for UNCHS 1993, the mean among the fifty-two cities and countries was five, ranging between 0.7 and 14.8. For Malaysia the house price-to-income ratio is five (UNCHS and the World Bank, 1993). Five is considered as a reasonable upper limit, and anything higher indicated a weakness in the housing policy where the houses are only affordable by a few households as in the case of Japan (Tokyo) where the ratio is twelve and China (Beijing) where it is fifteen (Landeau:1991). Tipple (1997), however, regarded a high house price-to-income ratio among the transformers as a sign of keenness to invest rather than the constrained housing market. The researcher is inclined to treat the value-to-income ratio as the house price-to-income ratio as far as this transformation study is concerned.

As expected, the value-to-income ratio for the recent transformers is the highest (five), the ratio for the established transformers is four, and the non-transformers have the ratio of three. This indicates that the houses provided by the authorities are easily within the affordable range for the households that are currently residing in the housing estates surveyed but these are not necessarily from the target group.

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1 House Price-to-Income Ratio is defined as the ratio of the free-market price of a dwelling unit and the annual household income (UNCHS 1993).

7.3.1 House Value

Table 7. 3. Value of House (Medians and IQR)

BY HOUSING ESTATE	*Ara*	*Yam*	*Sri*
Value of house (MYR Thousands)	***60*** (49, 70)	***35*** (30, 50)	***60*** (45, 79)
Value of house per habitable room (MYR Thousands)	***13*** (10, 15)	***8*** (6, 10)	***11*** (9, 13)
Value of house per square metre (MYR)	***909*** (790, 1240)	***570*** (370, 698)	***740*** (574, 992)
Higher or lower than average?*	***2*** (1, 3)	***2*** (1, 2)	***2*** (2, 2)
% higher than average	31%	7%	9%
BY TRANSFORMATION CATEGORY	*Established*	*Recent*	*Non*
Value of house (MYR Thousands)	***60*** (45, 80)	***60*** (45, 70)	***40*** (10, 60)
Value of house per habitable room (MYR Thousands)	***10*** (8, 13)	***10*** (8, 14)	***9*** (2.5, 12)
Value of house per square metre (MYR)	***698*** (530, 833)	***707*** (566, 869)	***816*** (106, 1133)
Higher or lower than average?*	***2*** (2, 2)	***2*** (2, 2)	***2*** (1, 2)
% higher than average	16%	11%	13%

* 1= less than average 2 = same as average 3 = more than average

Transformers have increased the value of their houses above those of the non-transformed houses by MYR20,000 at the median (50 per cent). Almost all households believed that their houses had increased in value regardless of whether they have transformed or not. Even the values quoted by the non-transformers are MYR15,000 more than the government's original selling price of MYR25,000. Where values are estimated to be higher than the rebuilding cost, this implies that the households could regard transformation as a form of investment not only in terms of its 'use value', but also for the 'exchange value'. As a result of the increased value of the property, the filtering up of these housing units in the future is inevitable although currently, only passive filtering is taking place. When comparing the value per square metre, the value among the established and the recent transformers are much lower than the non transformers. This is simply because they have provided the space at low cost per square metre. This may also be due to substantial gain in the total habitable area and non-habitable area after the transformation while the habitable area in the non-transformed house is quite small. The increase in perceived

value (MYR60,000) and rebuilding cost (MYR30,000) is extremely high when compared with the cost spent on transformation (between MYR12,000 and MYR15,000). This clearly indicates that transformation could be regarded as a highly profitable investment from the market value point of view. CARDO's findings in Bangladesh, Ghana and Zimbabwe shows that the value per room reduce with transformation but they rise in Egypt by 32 per cent at the median. However, value per square metre shows a different distribution because of the room size that cannot be predicted. As a result of this, housing is becoming cheaper per unit area through transformations in Egypt, Ghana and Zimbabwe but more expensive per unit area in Bangladesh (Tipple, 1997).

Gosling (1993) considers that extensions carried out by households represent 'a progressive upgrading of property to achieve higher standards'. He claimed that rising house prices may provide an incentive to extend where the cost of a small house with extensions would be less than the price of a large house with similar area.

Table 7. 4. Value of House Among the Target Groups Only (Medians and IQR)

BY HOUSING ESTATE	***Ara*** *n=6*	***Yam*** *n=19*	***Sri*** *n=15*
Value of house (MYR Thousands)	***60*** (51, 90)	***30*** (25, 40)	***50*** (45, 60)
Value of house per habitable room (MYR Thousands)	***12*** (9, 18)	***7*** (5, 10)	***10*** (9, 12)
Value of house per square metre (MYR)	***990*** (770, 1200)	***480*** (290, 700)	***740*** (570, 900)
Higher or lower than average?*	***2.5*** (1, 3)	***2*** (1, 2)	***2*** (2, 2)
% higher than average	50%	5%	7%

At the time of the interviews, only 22 per cent of the households form the target group with a total annual income of less than MYR9,000, i.e. 14 per cent in Ara, 33 per cent in Yam and 19 per cent in Sri. Seventy-two per cent of this target group have transformed their houses. The value of houses given by households in Yam and Sri from the target group are lower than those from the non-target group. Owners from the non-target group whose income are much higher must have considered the locational factor and had some notion of land value when giving their estimates as shown in Ara housing estate. They may also have overestimate the value of their house in a bid to

maximise their apparent wealth. The values in Ara are probably reasonably accurate since locationwise it is adjacent to the elite residential area of Damansara Utama and is very close to the city of Kuala Lumpur where people are generally aware of the market value of their housing unit. On the other hand, the target group, especially those further away from the city, may have a low opinion of the value of their house since the original house was built to minimum standards and the transformations are not very extensive.

Figure 7.7a House Value/ Total Income by Income Deciles for Housing Estate

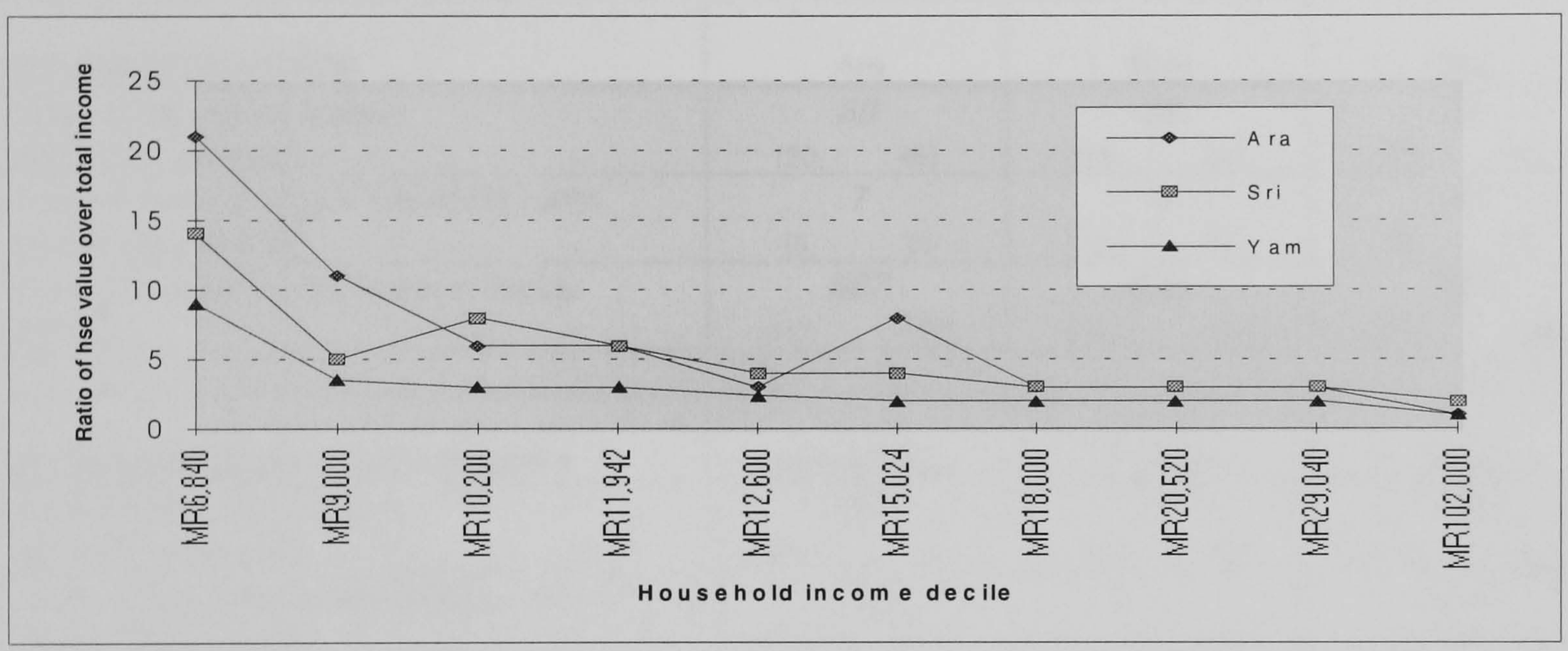
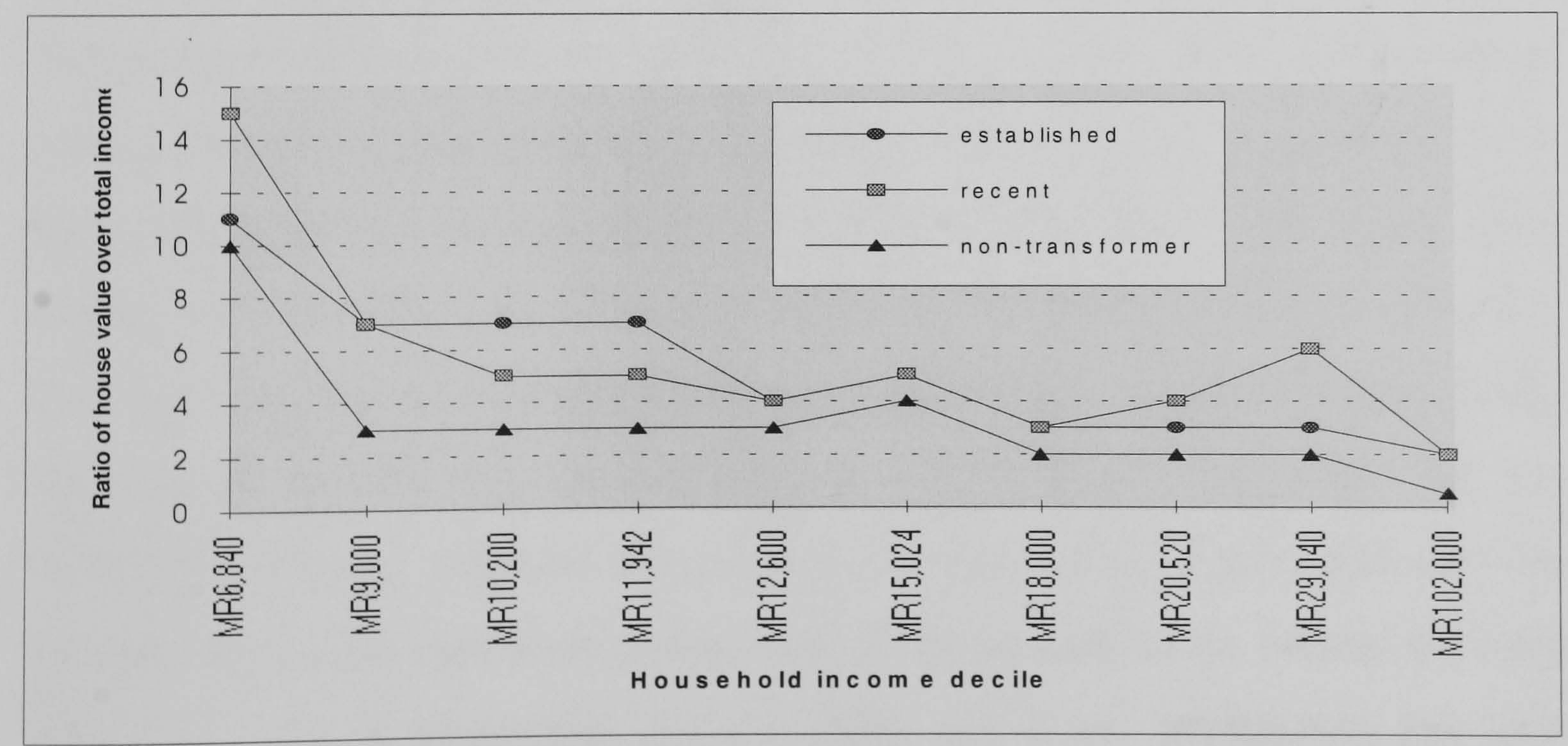


Figure 7.7b House value/ Total income by Income Deciles for Transformation Category



For households whose total annual income is MYR9,000, the value of the housing units among the established and recent transformers respectively is almost 15 and 13 times their total income. Based on location, Ara households have the highest ratio of house value over total income. The reasons for the ratio to be so high is because the declared income is not representative of real income.

7.3.2 House Cost

Table 7.5. Cost to Rebuild House (Medians and IQR)

BY HOUSING ESTATE	***Ara***	***Yam***	***Sri***
Cost of rebuilding house (MYRThousands)	***30*** (20, 45)	***20*** (15, 30)	***21*** (15, 40)
Cost of rebuilding per habitable room (MYR Thousands)	***7*** (5, 8)	***4*** (3, 6)	***4*** (3, 7)
Cost of rebuilding per square metre (MYR)	***507*** (417, 637)	***333*** (214, 447)	***327*** (245, 422)
BY TRANSFORMATION CATEGORY	***Established***	***Recent***	***Non***
Cost of rebuilding house (MYR Thousands)	***30*** (20, 45)	***30*** (20, 45)	***15*** (10, 25)
Cost of rebuilding per habitable room (MYR Thousands)	***6*** (3, 8.0)	***6*** (4, 8)	***3.7*** (2.4, 5.0)
Cost of rebuilding per square metre (MYR)	***345*** (243, 485)	***352*** (278, 510)	***341*** (208, 466)

The costs of rebuilding quoted were half the values given, indicating that owner-occupiers had strictly considered the construction costs and were aware that the price of land and profit margins had not been included. Among the housing estates, Ara shows the highest median cost. This is probably due to the nearby affluent housing estates which may have some effect on the cost of construction and labour. There was not much difference in the cost of rebuilding the house and rebuilding per habitable room between the established and recent transformers. The non-transformers, however, quoted the rebuilding cost at 38 per cent of the estimated value. This indicates that they can build similar housing units to those produced by the authority at a much lower cost; or for the amount they paid to purchase such a unit (MYR25,000), they could presumably manage to build a larger house with better layout. In contrast, there is only a slight difference in cost of rebuilding per square metre among the established, recent and non-

transformers indicating that there are no major increases in the number of rooms but only the increase in area of existing habitable rooms.

However, when asked whether the households are satisfied with the general construction and workmanship of the housing units provided, 90 per cent seemed to be satisfied, but what they are not satisfied with is the layout of the rooms within the housing unit. As stated in Chapter One, most owner-occupiers were not satisfied with these low cost houses on moving in day and those who could afford to start transforming their houses immediately. Had they not carried out their transformations, they probably would quote a much lower rebuilding cost similar to the non-transformers above.

Table 7.6. Maximum Monthly Rent for The House (Medians and IQR)

BY HOUSING ESTATE	***Ara***	***Yam***	***Sri***
Maximum rent per habitable rooms (MYR)	***61*** (50, 75)	***32*** (25, 40)	***40*** (30, 50)
Maximum rent per square metre (MYR)	***4.9*** (3.3, 6.1)	***2.3*** (1.8, 2.8)	***3.0*** (2.2, 3.3)
Value per habitable room/ maximum rent per habitable room = months	***233*** (150, 300)	***250*** (193, 284)	***290*** (228, 333)
BY TRANSFORMATION CATEGORY	***Established***	***Recent***	***Non***
Maximum rent per habitable rooms (MYR)	***40*** (30, 50)	***40*** (33, 50)	***36*** (30, 50)
Maximum rent per square metre (MYR)	***2.5*** (1.8, 3.3)	***2.7*** (2.0, 3.3)	***3.5*** (2.7, 4.9)
Value per habitable room/ maximum rent per habitable room = months	***267*** (200, 333)	***267*** (233, 308)	***225*** (64, 300)

Ara's close location to the city of Kuala Lumpur, gives it the highest potential rental compared to Sri and Yam but the maximum rents quoted would still only pay for the house over 20 years without any interest rate. Households in Sri, on the other hand, would take longer to pay back their value because of the extensive transformations that take place in that estate. As expected, the sub-samples, the recoupment period among the established and recent transformers are 3 to 4 years longer than the non-transformers.

The recoupment periods of 19 years to 24 years for the three housing estates surveyed could be considered very long and not economically viable. The unusually low rents quoted by the households arise from several reasons. Firstly, since the low cost housing projects were highly subsidised, the households might feel that to quote a high rent during the interview would not be justifiable. Residents in Ara tend to quote a low rent because they hope it would deter outsiders from coming in to live among them. They believe those from the middle income group normally associate low rent with lack of several amenities which, to a certain extent, is true in the case of Ara. Furthermore, the residents in Ara are certainly against the idea that their housing estates are being raided by outsiders when so many of their fellow squatter households are still living in their illegal dwellings close by.

The notional rental of a non-transformed house quoted is much higher than the repayment which the head of household has to pay to the government for the purchase of the housing unit. These houses are normally rented when the owners had to move due to being transferred in their job.

CHAPTER 8

CHAPTER 8

THE PROCESS OF TRANSFORMATIONS

8.0 INTRODUCTION

Once the low cost houses were made available to those who had applied, the successful applicants would generally reside in the same house for a good number of years. This is seen in the earlier Yam housing estate where they had been living since the early 1970s. Generally, households in subsidised housing are reluctant to move.

8.0.1 Motivation to Transform

The question on the motivation for households to transform their houses addressed the issue of why households adjust their housing consumption rather than tolerating the minimal housing space provided by the authority. It is an expression of discontent with the existing house (Gosling, 1993). Turner (1976) pointed out that what housing does in people's lives is important because household satisfaction is not necessarily related to the standards that had been created and imposed by the authority. Furthermore he believed that deficiencies and imperfections in one's housing are infinitely more tolerable if they are one's own responsibility than if they are somebody else's. When households control the major decisions and are free to make their own contribution to the spartan design, the resulting environment would stimulate individual and social well-being (Turner, 1976). Signs of this are seen in all the three housing estates surveyed.

Table 8.1. Factors in The Decision To Transform (%)

	HOUSING ESTATE			*TRANSFORMATION CATEGORY*		
Decisions	***Ara***	***Yam***	***Sri***	***Est***	***Rec***	***All***
More people joining household	54	58	52	54	54	54
Children getting older	31	25	40	32	37	34
Wanted to start business	15	11	7	10	9	10
Wanted to have extra space	0	6	2	4	0	2
Wanted to rent out rooms	0	0	0	0	0	0

Household were asked the reasons that affected their decisions to transform. Life cycle changes, i.e., more people joining the household and children getting older, are the main criteria for which transformations take place. It should be noted that all life cycle changes cited do not immediately force a household to transform but it all depends on how far the households can stand or tolerate the housing stress that has been generated.

The most important factor for the transformation activity is the need for the extra habitable space for additional members joining the household.[1] This is followed by another housing stress factor of the children getting older. Along with 'wanting to start a business', these three factors account for 98 per cent of the motives for transformation. Wanting to start a business generally occurs amongst the established transformers who are mostly older and have retired from their regular form of work. Since most of the owner-occupiers were employed by the private sector, they were not entitled to any pensions from the government. Thus, starting a business is one way of sustaining a source of income for the household.

Renting out rooms is certainly not an important factor in deciding whether to transform or not. Where there are occurrences of renting, house owners in the three selected housing schemes normally rent the entire house instead of just letting a room or part of the house.

Being persuaded to join in with the next-door neighbour to transform their house is not a common practice although there are three pairs of houses in Ara with identical external facades indicating that these houses have been transformed at roughly the same time and by the same contractor or builder. None of the transformed, terraced houses in Yam have these identical features.

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[1] In the evaluation study of Public Low Cost Housing in Peninsular Malaysia (July, 1993), 59 per cent of the households interviewed wanted their kitchen and living room to be extended.

Table 8.2. Factors in The Decision To Transform Rather Than Move (%)

	HOUSING ESTATE			*TRANSFORMATION CATEGORY*		
Decisions	***Ara***	***Yam***	***Sri***	***Est***	***Rec***	***All***
No affordable price available	65	58	57	59	60	59
Did not consider a move	23	19	8	15	14	15
Like this area - prefer to stay	12	14	28	21	20	21
No other alternatives	0	9	7	5	6	5

When asked about the decision to transform rather than to move, 59 per cent of the transformers felt that there were no other houses available at the price that they could afford. In other words, these households may have considered moving but could not. Thirty-six per cent of the transformers did not even consider a move and prefer to stay where they are, particularly in Ara and Yam. Generally, households prefer to remain in their present location in order not to uproot the household from existing social and geographical networks which may cause major disruption in their family life. This would include the loss of an environment that is familiar and this would constitute a non-monetary adjustment cost (Dynarski, 1986). House owners who had carried out extensive transformations are generally reluctant to move and if the head of household had to make a move because a transfer of their job, they would normally leave their family behind in the house.

Some households are willing to pay a certain amount just to be near the family and friends, or just to live in a familiar area. But one cannot trade 'proximity' or 'familiarity' in any market. Familiarity cannot be handed over from old to new residents. For example, close ties with the local mosque for one household, would be meaningless to another who are Hindus or from a different religious background. According to these affected families, it is cheaper for them to remain in their transformed houses rather than moving out and renting a similar house in a non-subsidised market.

8.1 PROBLEMS ENCOUNTERED IN THE TRANSFORMATION PROCESS

Table 8.3. Problems Encountered (%)

	HOUSING ESTATE			*TRANSFORMATION CATEGORY*		
Major problem	***Ara***	***Yam***	***Sri***	***Est***	***Rec***	***All***
Finance	19	11	8	9	17	11.5
Labour	8	0	2	4	0	2.5
Others	4	6	0	3	0	2.5
No problem	70	83	90	84	83	84

Very few of the respondents encountered problems during the process of transformation and those that had mainly had problems of finance. The response to this question is similar to that on the allocation of low cost housing units to the low income group where the heads of households are generally reluctant to give their opinion on such matters, let alone to reveal any problems that are associated with their houses. Revelation of existing problems is taken as a sign of not being satisfied with what they have and this would be the last thing of which they would want any outsider to have an impression. However, one must be aware of the extraordinary ability of the respondents who are transformers in organising their resources in order to complete the transformation process, particularly those who earn MYR9,000 and below (Figure 7.1 - Cost of Transformations). There is no typical case, for each household had a unique set of resources to work with. The amount of savings involved in the transformation process varied enormously. The households interviewed had a very wide range of desires and needs and circumstances which in turn had a great effect upon the kind of transformation they wanted or were able to afford.

8.1.1 The Construction Process

Table 8.4. The Implementers of The Transformation Process (%)

IMPLEMENTERS	*FIRST TRANSFORMATION*			*SECOND TRANSFORMATION*		
Worker	***Est***	***Rec***	***All***	***Est***	***Rec***	***All***
Self-help	23	34	26	6	50	17
Hired tradesmen	35	23	31	47	33	44
Single contractor	42	43	43	47	17	39

The informal sector construction process for the transformation activities is generally carried out by hiring a single contractor or tradesmen, or by self-help. Household characteristics are important determinants of the choice of implementers to carry out the construction process.

Higher household income and more years of education increase the probability of hiring tradesmen or single contractors. For self-help projects, as detailed in the following case studies, the construction methods are quite rudimentary.

Case 8.1 The Syed Household (established transformer)

Syed is 50 years old. He has never had a permanent job although he had his Lower Certificate of Education as a qualification. He started his present job only three months before this interview was carried out.

His house is on the corner lot. Unlike his neighbours who could only extend their houses on the front and on the rear, he was able to extend along the side wall. He carried out the transformations twice. He started with the extension in the kitchen area which cost him MYR6,000. Next he extended along the side wall in order to start his home-based enterprise of making 'chilli-paste' and distributing it to the 'wet'[2] markets around the city of Kuala Lumpur. Most of the building materials used for the roof and the walls in the second transformation were corrugated zinc sheets salvaged from several nearby factories. The cost of the transformation of his house finally totalled up to MYR8,000 and the total area gained is 69 square metres. It was basically spent on hiring tradesmen to carry out the construction plus the cost of few bags of cement and a couple of boxes of nails. Even the sand was free. He got it from the nearby river.

When asked why he did not use a conventional construction, e.g., reinforced concrete structure with brickwall infill or even a timber structure, his reply was that such construction would require building permission from the local authority and the process was too time consuming. He said he could not afford the time nor the cost of such an elaborate construction. He was satisfied with what he had done because he need not have much capital in order to start the home-based enterprise.

(Cost of first transformation: MYR116 per square metre.
Cost of second transformation: MYR40 per square metre)

Case 8.2 The Lim Household (established transformer)

Mr Lim is 60 years old. He used to sort out timber that was sawn in the sawmill in the nearby town of Rawang. Whatever timber boardings were rejected each day, he would gather and bring them back to his house on his bicycle! Considering he had been working with the sawmill for over 30 years, he said the management was willing to overlook those 'little pieces' that he had taken and, anyway, they were mostly warped or split.

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2 Most markets in Malaysia are divided into wet and dry markets in which only the former sells perishable items e.g., vegetables, fruits, meat and fish.

He had to purchase a few pieces of the corrugated asbestos roofing materials, a few bags of cement for the kitchen floor, plus a few boxes of nails in order to carry out the transformation which he did all by himself whenever he had the time. The total amount that he had spent was only MR400 and the total area gained is almost 16 square metres. The construction methods were crude and the structure appeared to be of temporary nature when compared to the transformation carried out in case 6.1. His main aim in transforming his house was to have a slightly bigger kitchen and he definitely was not trying to keep up with the Joneses.

(Cost of transformation: MR25 per square metre).

Plate 8.1 Examples of Self-Help Transformation in Ara

Salvaged building materials have enabled Syed to transform his house (top). Unlike other owners of end plots who have carried out extensive transformations, this particular household could only afford an extension to the kitchen with rudimentary construction (bottom).

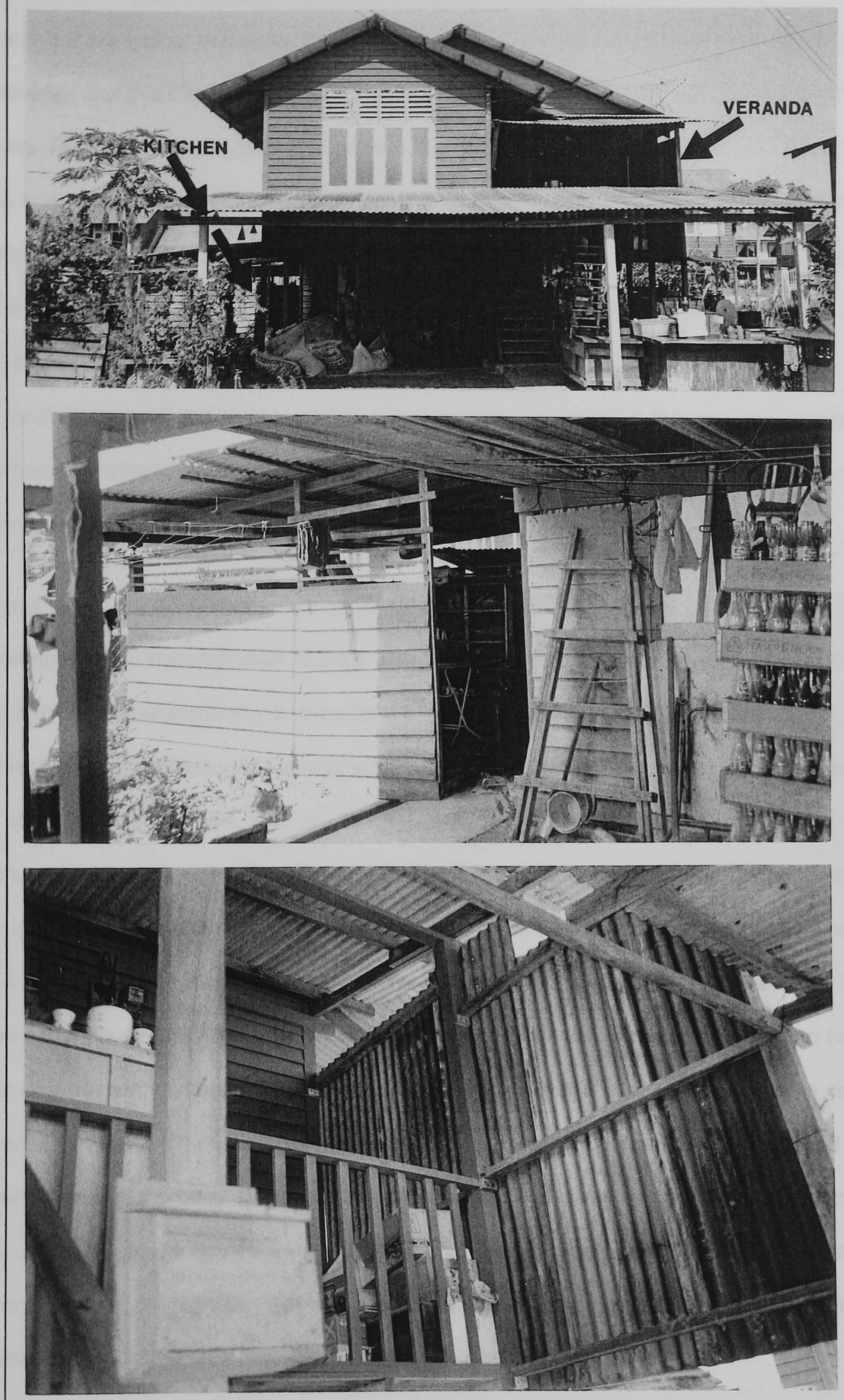


Plate 8.2 Examples of Self-Help Transformation in Sri

The house which Lim transformed using salvaged materials. Timber is used to wall the windowless kitchen area (middle). Corrugated zinc sheets are used to provide walls to the veranda (bottom) and as roofing material to the porch.

Case 8.1 and 8.2 are typical examples of transformations carried out progressively by those with limited resources and this clearly indicates the ability of laymen, to achieve what they need out of their housing. They were among the 26 per cent who carried out the transformation in a self-help way (Table 6.15. The Implementers of The Transformation Process). On the whole, the costs of transformation for these houses were incredibly low because not much was spent on the building materials and the cost of labour was kept to a minimum. Considering the amount spent, and based on the standard construction rates, one would not expect such a substantial gain in the total area for each house but that was exactly what had been achieved. In the case of a self-help transformation, one simply cannot equate the gain in habitable space with the total amount spent in transformation. They are simply not proportionately related.

From the general conversation with the households involved in the self-help transformation, the construction time taken from the start of each transformation to completion is much longer than those who had the transformation job done by a single contractor or by hiring tradesmen (7.1 - Cost of Transformation Phases). The marginal benefit of time spent on a self-help transformation depends upon the household's skill in carrying out the construction work and upon the household's preferences for carrying out the transformation. The more skilled is the household, the higher is the marginal benefit. The household's skill in self-help transformation has not been determined in this study but the survey does ask for the total annual income of the household. It is hypothesised that households with higher income or more educated heads are less likely to have any skill in construction works and would therefore hire tradesmen or a single contractor to carry out the transformations. Transformation jobs carried out by the contractor are governed by contract periods but, in the case of self-help transformation, time is not a major criterion. It would have been useful to get the figures for the time spent by the self-help transformers but most of them do not have such records, their only reply is that it takes some time to finish their transformation work.

Those with low income, working in the informal sector, are officially assumed to be out of work because they are not working in a job that is registered but in fact they are working long hours. There was one case in Ara where the head of a particular household works in an abattoir in the

city from 8am till noon. He then returns home for lunch and has his siesta. Then, from 3pm till 9pm, he works as a watchman at one of the warehouses near the city. He has a double income and work seven days a week. This particular head of household has not transformed his house because he does not have the time to do it himself and he does not intend to hire others to carry out the job because he simply cannot afford to do so.

The Syed and Lai households had managed to optimise their income by minimising their expenditure on housing transformation. Their budgets are obviously a function of the households' priorities especially in the case of Syed's household. He obviously has made the best use of his surplus by saving as much of his income as possible in order to start his home-based enterprise. The physical quality of his house is secondary and almost anything will do as long as his business is not unduly threatened by the local authority. As his business is probably bound to expand, the enterprising Syed is already on the look out for a better location to house it permanently and since the present extension is mainly of corrugated zinc sheets, it will be easy to dismantle at short notice. In the meantime, he will just continue his present business in Ara.

In the case of Lai, he had acted individually to improve his own house. There was no need for skilled workers in his transformation process. For this self-help transformation, skill is related to age. Older owner-occupiers may have the experience and the skill in minor construction work, i.e., basic carpentry or simple bricklaying, although some may lack the strength or ability of owner-occupiers who are much younger, as in the case of the Syed's household. The highest likelihood of a self-help transformation is among households who are headed by men. Households headed by women who traditionally have no knowledge of general building construction are most likely to depend on hired tradesmen or single contractors to carry out the transformation works. This is shown in case 7.6, the Sumini's household.

Case 8.3 The Sumini Household (recent transformer)

Sumini is a widow and has lived in the Yam housing estate (phase Two) for 26 years. She is 56 years old, and has 3 children. At the time of conducting the interview, only her 23 year old son is living with her. Both her 30 year old and 21 year old daughters are not living with her. The eldest is married and the youngest is in college.

Sumini is illiterate and used to work in the nearby oil palm estate for 8 years with an income of MYR300 per month. She was laid off and now works as a cleaner at the government office with a monthly income of MYR150. She does not spend much on food because her son goes fishing quite often and she plants her own vegetables. She goes to work by bus which cost her MYR25 per month.

Her late husband bought the house at MYR25,000 and he paid a deposit of MYR2,000. Every month they would go to the Hulu Selangor District Council to pay MYR84.49 for the housing loan.

In 1995, the children had a discussion with Sumini. They decided to transform the house because they felt that it was too small when all the siblings get together. Sumini agreed to sell her late husband's piece of land for MYR8,000 and used some of that money to finance the cost of transformation which was MYR3,000 and the total area gained was 30 square metres.

(Cost of transformation: MYR100 per square metre).

Case 8.3 portrays a household whose head is a woman. She has no intention of leaving the present house let alone disposing of it. She could have built the same house on the land that she had inherited from her late husband by applying for the Special Housing Loan for the Low Income Group (Chapter Four) but she did not. According to her, the construction of the current house that she is occupying would cost her MYR15,000. If she had applied for the above loan the maximum amount she could get is only MYR7,500 and she would still need another MYR7,500. After much deliberation with her children she decided to transform the low cost house in order to gain the extra habitable space for her children. To her it is too much trouble to construct a single house on her late husband's land and it is like starting all over again. 'Single-parent households headed by women face the greatest constraint on free time as they have to combine income earning, child rearing and household maintenance,' as pointed out by Moser, *et al* (1987).

Prior to carrying out the transformation activity, an owner-occupier would have discussed with or sought advice from friends or neighbours who had already transformed their houses and they in turn would recommend a few names of workers whom they would consider reliable and capable of carrying out the construction. Generally, the would-be transformers will have this 'look and see'

attitude before carrying out their transformations. For a simple construction, a skilled worker who has some experience in bricklaying and carpentry would suffice but an elaborate transformation would require a few skilled workers under the supervision of a single contractor to carry out the construction. Generally, plans of the proposed transformation are not required. Most of the dimensions are based on rule of thumb or by following the existing structural grid of the original house. An agreement will be reached about the nature and extent of the construction works, the approximate cost and the amount of building materials required. If there are any modifications on the extent of the transformation and if this would involved extra costs, negotiations during the work will be entered into. Most transformers would inform their next door neighbours about their intention of transforming their houses and apologising for the inconveniences incurred and some would even agree to transform their houses together, as seen in several cases in Ara, but no persuasion is imposed on the neighbour as mentioned earlier.

Plate 8.3 Neighbour-negotiated Transformations in Ara

It is not uncommon to see two dwelling units being transformed at the same time indicating negotiations and agreement amongst the next-door neighbours. All examples shown have carried out extensions to their kitchen in the rear as shown in Plate 5.6.

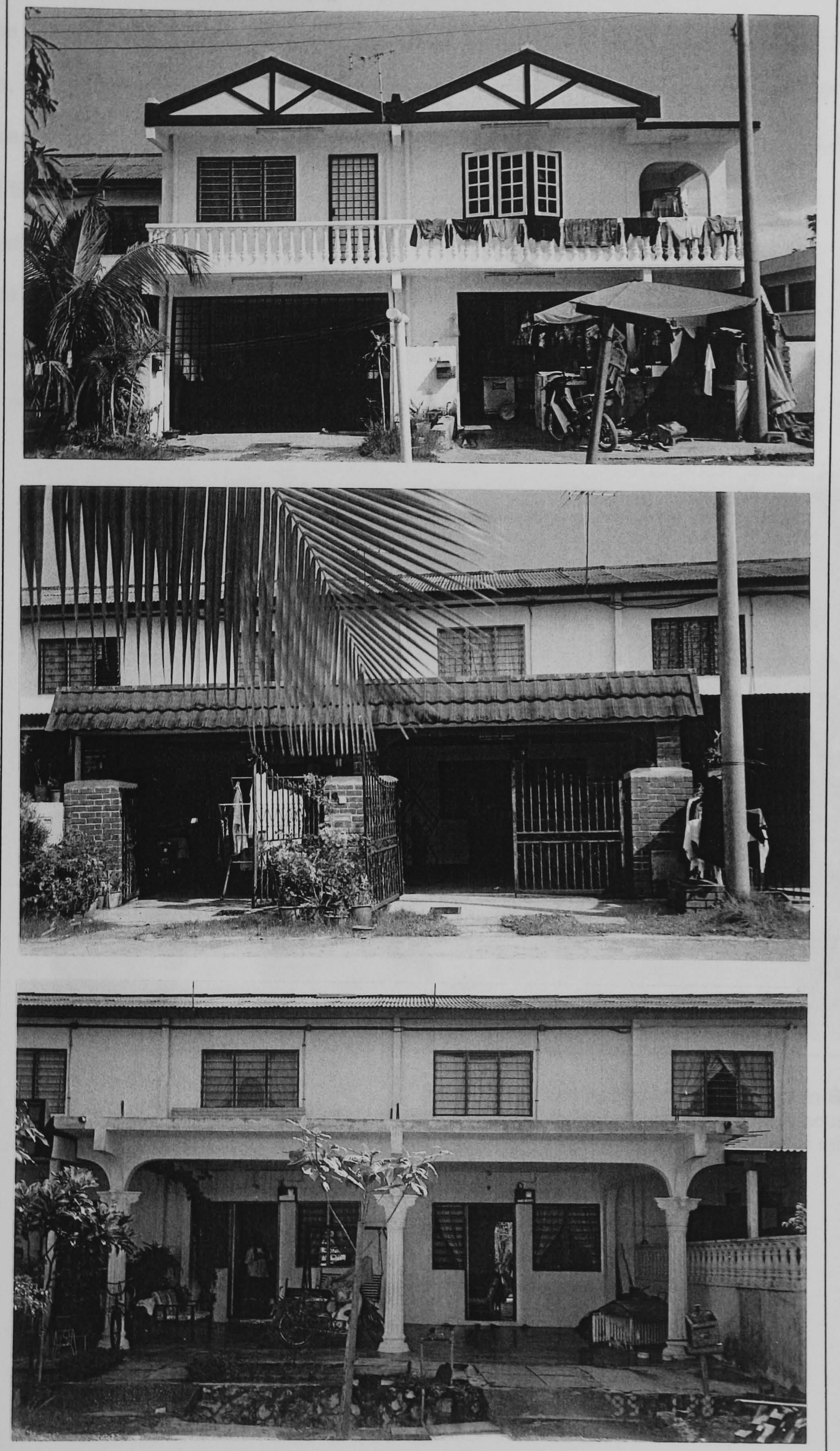
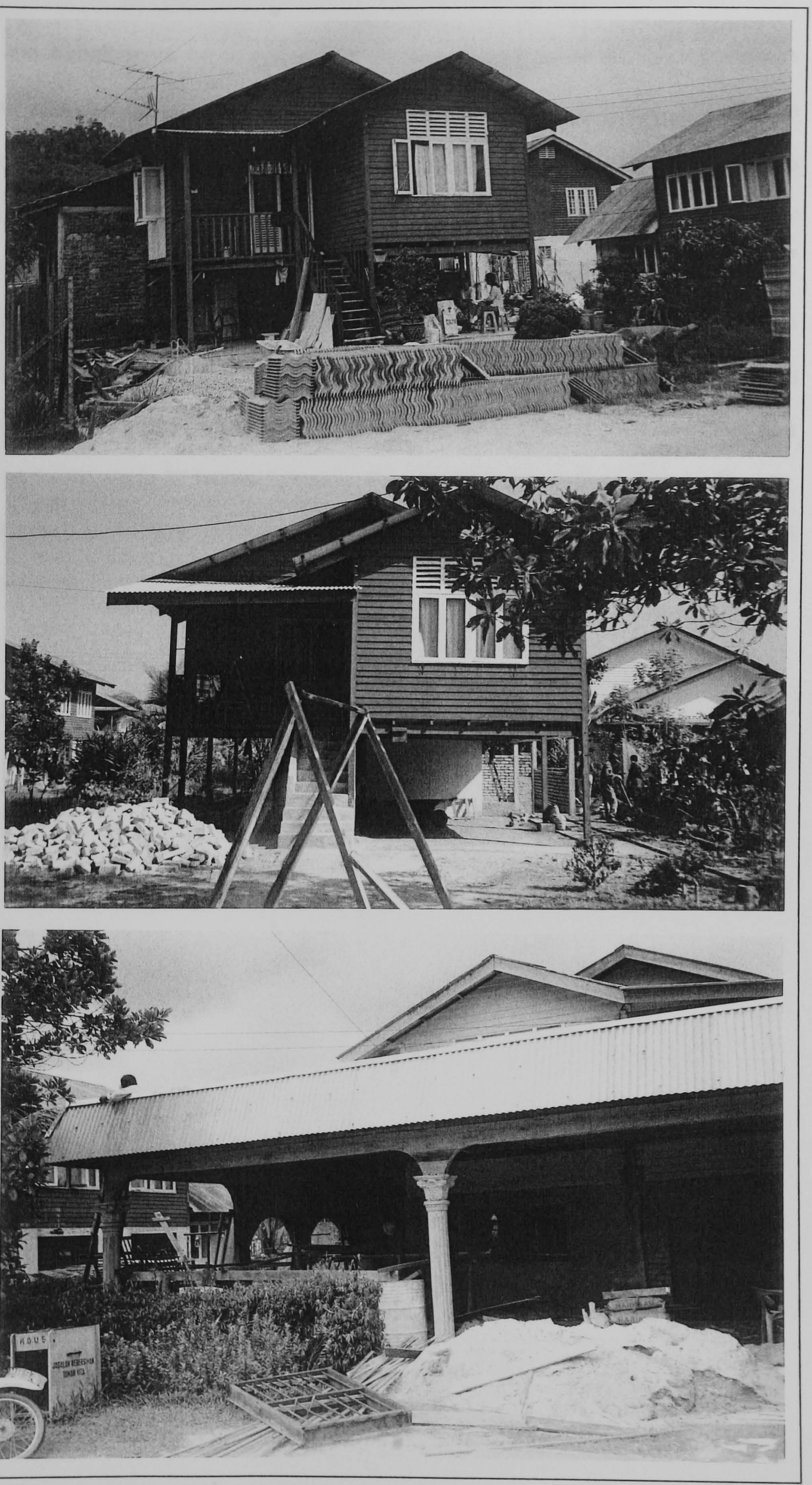


Plate 8.4 Neighbour-negotiated Transformations in Ara

Most of the building materials e.g., bricks, roofing tiles, sand and aggregates, are stored in front of the house, just by the roadside. There is no problem of theft at all. Bags of cement are stored under covered areas to avoid getting wet. In Ara, the owner-occupiers were fully aware that the walls and floor components of the original houses built by the authority consist of prefabricated panels and any new voids or fenestrations carved out would drastically reduce the effective strength of these panels. So most of the transformers in Ara hardly removed any of these prefabricated wall components in their transformation process so as to avoid unnecessary structural problems at the later stages of the construction.

Plate 8.5 Building Materials Storage in Sri
Materials that need to be stored in a dry place are stacked beneath the house to keep away from the torrential rain.



aggregates
roof tiles
sand

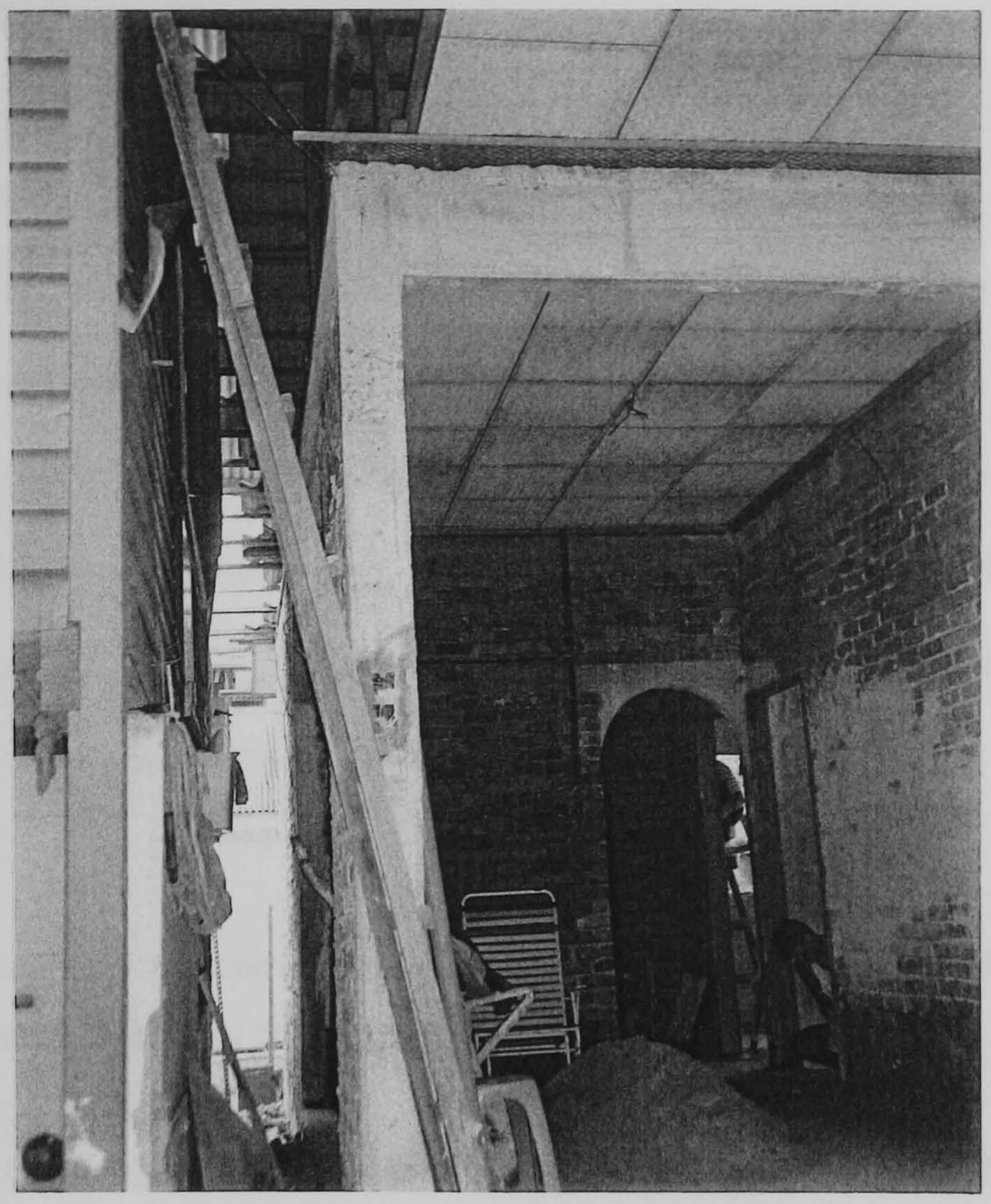
sand bricks

river sand

Plate 8.6 Building Materials Stored by the Roadside in Sri

In Sri, most of the transformers have raised their timber houses so as to achieve enough headroom for the intended ground floor. This is ingeniously done by using the jack used in changing tyres for heavy vehicles. Prior to 'jacking' up the house, the four external walls will be diagonally braced so as to prevent any distortion. The equipment will then be placed below one of the stilts and the house will be slowly jacked up inch by inch. Once the stilt reaches 4 inches (125mm), bricks will be placed below the stilt to support the house and the jack is removed. It is then moved to the next stilt. This process is repeated until all the stilts have been raised to an equal height of 4 inches (125mm). The process is then repeated to achieve the further rise of 8 inches (200mm) and even up to 12 inches (300mm). For every 1 foot rise the cost is MYR1,000. The common headroom for the ground floor is 9 feet (2700mm). If the house had not been raised the headroom would only be 7 feet (2000mm).

The original timber structure on the left will be lifted on to the new concrete column on the right which is part of the extension to the kitchen



For this unit, the original timber structure on the left has already been lifted up on to the insitu concrete column.

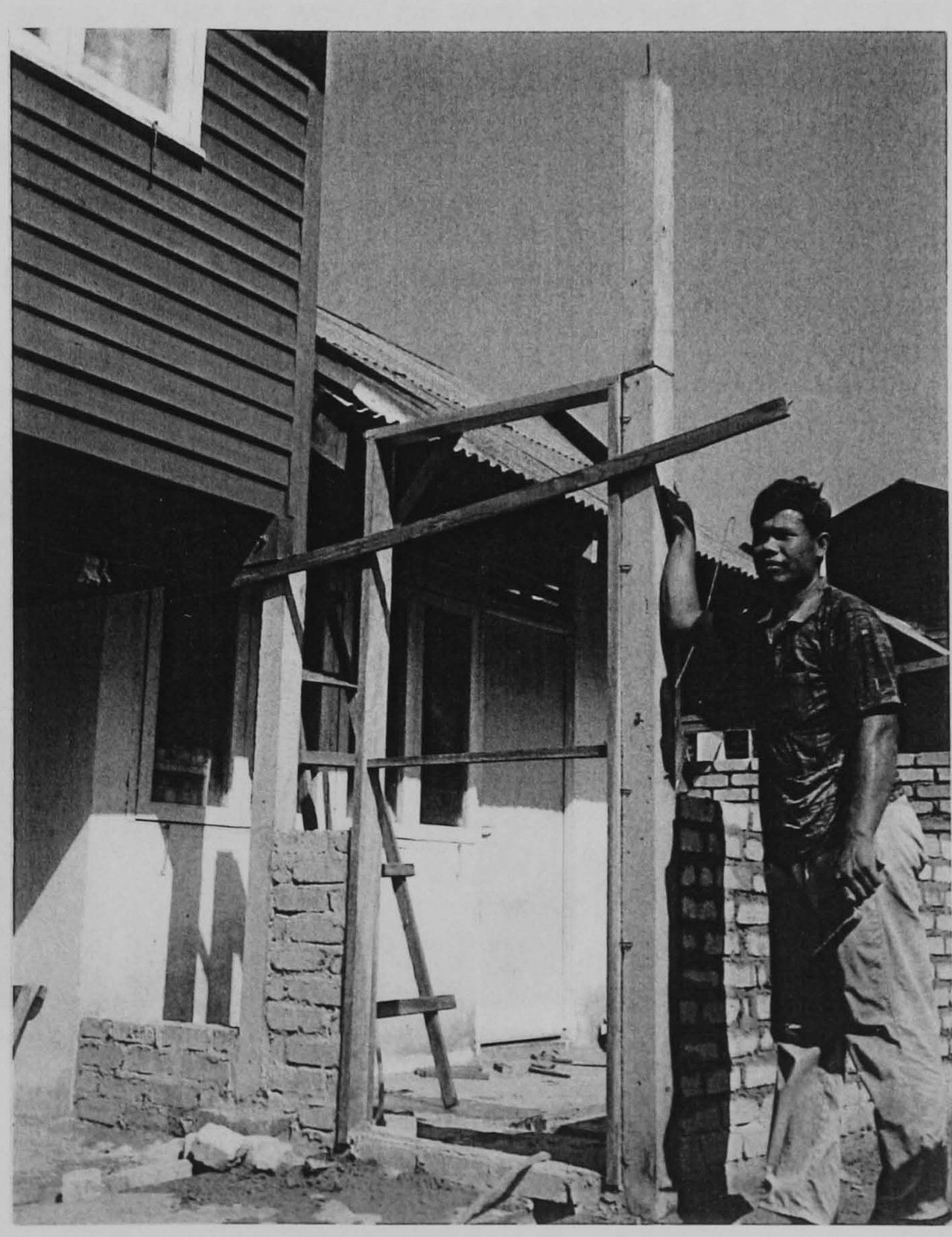


Plate 8.7 Examples of Construction Detailing

Examples of demolitions of existing structures and construction of a completely new house are not found in Ara but there is one in Yam and another one in Sri. The one in Sri was built after the original timber house, which was rented out at the time, was completely gutted in a fire. The original house owner sold the house to a friend. On checking the record at the Local Authority, the researcher found that the house is registered as belonging to the original owner. The original owner simply had to get rid of the house because he considered it as bad luck to live on the same location. The one in Yam is located on an end lot. The owner decided to demolish the original unit and commissioned an architect to design a new house. Both owners had their building plans submitted to the local authority concerned and both received the approvals to carry out the construction.

Case 8.4

Mr Tan is 66 years old pensioner. Together with his 32 years old son, who is a successful building contractor, they decided to demolish the original timber house in Sri and build a single storey bungalow which could house 8 people.

Mr Tan bought the house in 1991 and had it rented until 1992 for MR150 per month. To buy a piece of land and build a similar structure would be very expensive. It is cheaper to demolish and build a new house. They submitted the building plans to the local authority for approval and the total cost of transformation was MR80,000.

His eldest son will inherit the house.

Estimated value of the house is MR200,000, and cost to rebuild is MR100,000,

Plate 8.8 Tan's Newly Built House

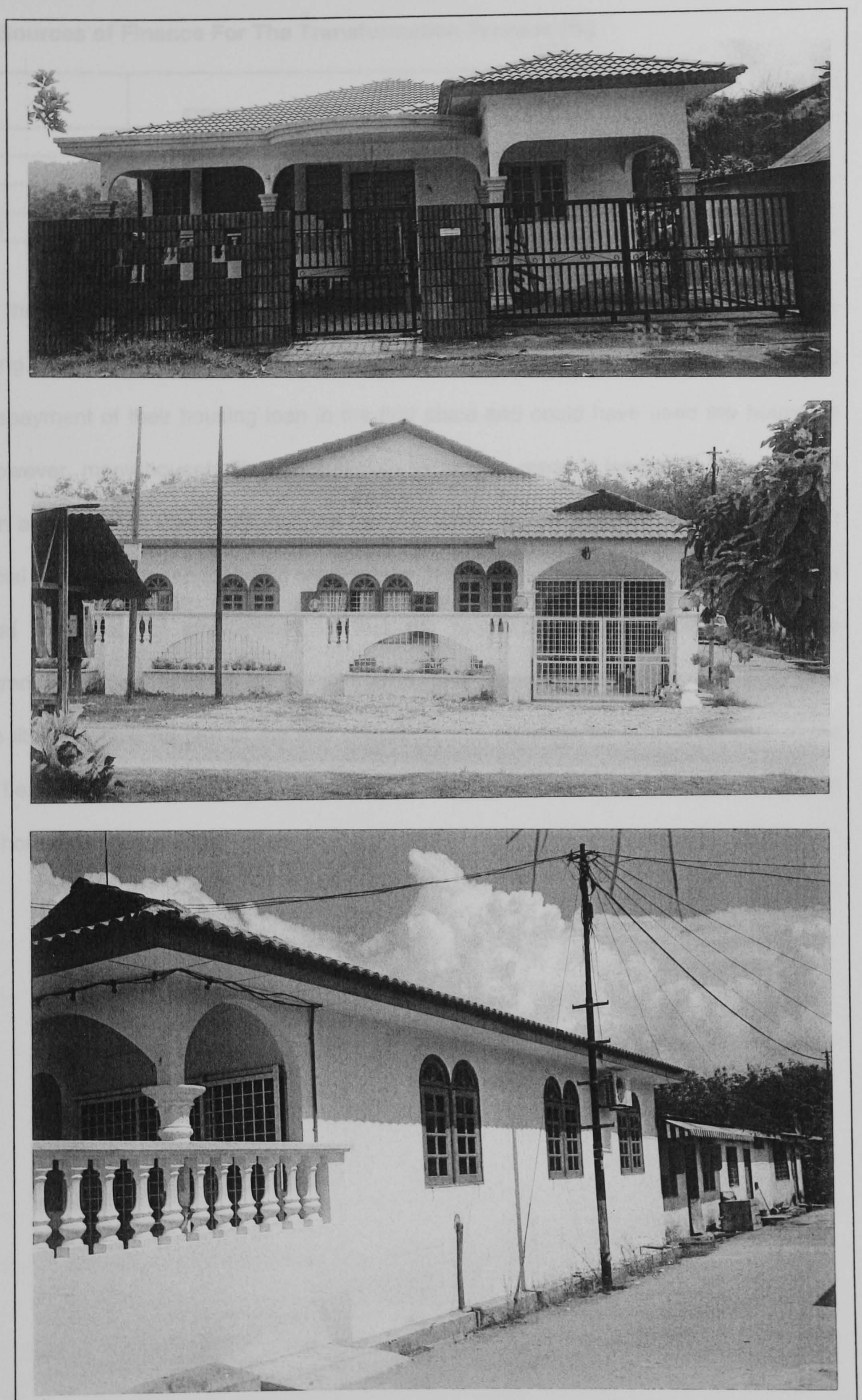


Plate 8.9 Examples of Newly Built Houses After Complete Demolition of Existing Units

Existing timber house in Sri was demolished and replaced with new one built in concrete and bricks (top)
Newly built house on a corner plot in Yam (middle and bottom).
These houses have been approved by the Local Authority.

Table 8.5. Sources of Finance For The Transformation Process (%)

	FIRST TRANSFORMATION			*SECOND TRANSFORMATION*		
Finance	***Est***	***Rec***	***All***	***Est***	***Rec***	***All***
Bank loan	9	3	7	6	0	4
Savings	84	83	84	94	83	92
Family's fund	7	14	9	0	17	4

Savings are the main source of finance for most of the transformations among households whose housing loan is still outstanding. Those who managed to secure a bank loan would have settled the repayment of their housing loan in the first place and could have used the house as collateral. However, many households with sufficient income to repay a long term housing loan cannot obtain another bank loan to finance the transformation activity because they cannot meet the commercial banking criterion for being creditworthy, for instance they may work in the informal economy and lack proof of employment, or lack the required collateral. Family's fund are significant among retired heads of households who have large households and during their lifetime have little savings. As part of the filial obligation, it is common for adult members of the households, i.e., sons and daughters, to contribute to enable the transformation activity, as shown in the Samy household (case 7.1).

Table 8.6. Building Permission from Local Authority (%)

	TRANSFORMERS						*NON-TRANSFORMERS*		
	First Transformation			***Second Transformation***			***Intended Transformation***		
Building Permission	Ara	Yam	Sri	Ara	Yam	Sri	Ara	Yam	Sri
Asked - Yes	8	31	25	8	50	67	9	4	14
No	92	69	75	92	50	33	91	96	86
Granted - Yes	4	22	22	0	25	67			
No	96	78	78	100	75	33			

	TRANSFORMERS						*NON-TRANSFORMERS*		
	First Transformation			***Second Transformation***			***Intended Transformation***		
Building Permission	Est	Rec	All	Est	Rec	All	Est	Rec	All
Asked - Yes	22	26	23	29	33	30	10	0	7
No	78	74	77	71	67	70	90	100	93
Granted - Yes	17	20	18	24	17	22			
No	83	80	82	76	83	78			

Sri and Yam are governed by the same local authority i.e., the Hulu Selangor District Council (MDHS). The majority of the transformers who applied for building permissions were among the recent transformers, particularly those from Sri. This was partly due to the new ruling which started in April 1994 when Sri came under the jurisdiction of the Hulu Selangor District Council and because most of the transformations in Sri are major construction works. The time frame associated with the recent transformers in this study was from January 1993 to April 1995, but work carried out by the established transformers would mostly fall outside the above mentioned dates. On the other hand, the transformers in Ara had generally not bothered with the application for building permission and the excuse given was that they were not sure to which local authority should they submit their applications, i.e., the Petaling Jaya Town Council or the Petaling District Council, although officially they were controlled by the latter.

The fact that none of the transformers interviewed had received any threats or had actions taken against them indicated that the local authorities were quite relaxed on issues related to transformations. Local authorities very rarely demolish any transformation work that has been carried out by the owners. In a way this is a 'smart move' because transformations could be a source of revenue for the local authority itself. This is normally achieved by increasing the rate

for every house that has been transformed based on the gain of the floor area. It is commonly believed among the officials in the local authorities concerned that, if the owner-occupiers could afford to carry out the transformation works, they must be able to pay the new annual rates for their transformed house.

However, none of the households have been summoned with new property tax even though most of the transformations had been carried about 4 years ago. All households are still paying the standard MYR60 property tax per year based on the original floor area of 51 square metres. New property tax could be ascertained based on the total area gained (Table 6.2). Since the total built area in Ara, Yam and Sri is 68, 70 and 85 square metres respectively, the approximate property tax to be collected each year from the 3 housing estates would be MYR10,500, MYR16,200 and MYR41,200. The total amount that should have been collected by the local authority is MYR21,100, MYR27,700 and MYR52,000 from Ara, Yam and Sri respectively. The total amount that should have gone into the local authorities coffers is approximately MYR90,000 and this has never been collected. The local authority should not delay in the issuance of the new property tax because the longer it takes the more the amount the households have to pay in the end and this could be a financial burden for some households.

Clearly, both the transformers and the local authorities have benefited or could benefit from the process of transformation. The former are able to extend their houses within the limit of their income resources and the latter are able to increase the revenue by imposing a higher assessment on these transformed houses without any initial financial input from the government.

8.2 INTENTION FOR DISPOSING OF THE HOUSE

Table 8.7. Owners' Intention for disposing of the house(%)

	HOUSING ESTATE			*TRANSFORMATION CATEGORY*		
	Ara	***Yam***	***Sri***	***Est***	***Rec***	***All***
Pass to another family member	57	38	39	47	40	37
Rent it out	35	50	33	33	40	50
Sell to next occupant at full value	0	5	3	4	3	0
Sell to family member	3	0	0	0	3	0
Will not leave house	5	7	25	16	14	13

Selling a house is not a popular thing to do among households in the low cost housing estates surveyed despite an active resale market in houses. A majority of the respondents prefer to pass their house to members of their families because they treat their house as the most valuable asset that was made available to them cheaply by the government. It is like winning a National Lottery. For many, it is also the most significant item of the household's expenditure. Furthermore one of the conditions in securing the housing loan from the government is that house buyers are not allowed to sell their houses (Chapter Four). This certainly prevented the likelihood of the current population in the housing estate being displaced by higher income households within the 25 years repayment period. Even the non-transformers who are less sentimental about their houses are willing to rent but not to sell. Owners' intention to keep the house within the family indicates that the households will reap the benefit of their investment in transformation from the long term use value. For analysis later in the chapter, these households are grouped into two variables '*SELL*' and '*NOT SELL*'

Case 8.5

Pak Aji is 51 years old and has stayed in his Yam house for 26 years. He is a teacher at the local religious school. He has finished paying his housing loan and has even built a second house on a piece of land in the village.

His eldest daughter who is married with 2 young children will move into his old house which he had transformed in 1974 and it only cost him MYR800. He only enlarged the living room because the children in the neighbourhood come to learn the Quran at his house in the evenings. At present his daughter is renting the non-transformed house next to his. His son-in-law who works in the city does not earn very much so having to rent a house is quite a burden, let alone to rent one in the city.

This is a classic example of two households where one is at the post family stage and the other is still very young with dependent children. In developed countries, the buying and selling of houses would be the form of housing adjustment process but, in this case, houses are passed from the elderly parents to their children who are on the stage of setting up their own family. Instead of selling, the family is accumulating wealth.

8.3 AN EVALUATION OF THE CONTINGENT VALUATION GAME

For most households, to be able to transform their housing unit is one of the goods in the basket which constitutes the improvement of their housing conditions. The two basic theoretical approaches for assessing the willingness to pay for any housing service or good in developing countries are the 'direct' and the 'indirect' approaches (Whittington et al, 1991). The former approach has been applied to this study where the household is simply asked how much he or she is willing to spend on the transformation works that is shown in a photograph of a typical extension. Whittington *et al*, termed this the 'contingent valuation method' because a hypothetical question is being posed to the household. They also believed that the advantage of using this method is that it can be used in a situation where the good or service is not currently available to the particular group of household. For this study, they are the non-transformers, i.e., household who have not carried out any transformation on their housing units. The major setback with the contingent valuation method is that the respondents may not give an accurate answer to questions on willingness to pay. They may not reveal their true willingness to pay and this will affect the bids. Whittington et al, also pointed out that there are three biases that may affect this bidding game, i.e., starting point bias, hypothetical bias and strategic bias.

For the bidding-game in this study, the interviewer starts the questioning at an initial price of MYR10,000 for the three housing estates. The researcher does not have three different initial prices as all these houses are sold at the same price of MYR25,000 and the qualifying annual total income for the households is to be not more than MYR9,000. The starting point bias arises when a household will just tend to agree with the initial price of MYR10,000 so as to avoid further questioning or just to please the interviewer. When this happens it will certainly affect the household's final figure for willingness to spend on the transformation.

It can be difficult for the low income group to perceive an abstract good like an improvement in the environmental quality or water quality, etc., let alone to provide an answer on their willingness to pay for such services. However, it is assumed that the characteristics of a good like the transformation of the low cost housing unit is quite straightforward. Thus the problem of hypothetical bias is not a major issue. Whittington *et al*, pointed out that, when an individual thinks his/ her answer may have some influence on the policy decision, he/ she may or may not truthfully answer the interviewer's question. They termed this "strategic bias". It is most unlikely that the low income households for this particular housing study would think that their answers on their willingness to pay for the transformation during the interview would in any way have any influence on the country's housing policy. The common belief is that the amount that they are willing to spend in transforming their houses is indicating their ability to improve their own housing condition out of their own initiative. As it is, they are grateful that they have been selected to be the beneficiaries of the low cost housing programmes.

Table 8.8. Willingness to spend (%)

NON-TRANSFORMERS *n=61*				
		Ara *n=16*	***Yam*** *n=21*	***Sri*** *n=24*
Willingness to spend little (MYR5,000)	Do not know	56	86	77
	Yes	19	4	15
	No	25	10	8
Willingness to spend middling (MYR10,000)	Do not know	31	81	8
	Yes	31	5	69
	No	38	14	23
Willingness to spend large (MYR15,000)	Do not know	25	81	8
	Yes	37	5	15
	No	38	14	77

Despite the above discussion and our having shown them the photograph of a typical transformation that has been carried out within the housing estate, a majority of the non-transformers interviewed (particularly in Yam which is furthest from the city of Kuala Lumpur) have not a clue on how much they are willing to spend on transformation. Respondents seemed reluctant to answer a hypothetical question because they felt that their ability to transform was

being undermined. Some tended not to treat the question seriously as they do not like answering a question that is related to the future of which they say they are not certain.

Table 8.9. Total Cost Willing to Pay for Transformation in Malaysian Ringgit (Medians & IQR)

Ara	*Yam*	*Sri*	*All*
10,000	***5,000***	***15,000***	***11,000***
(5,000 23,750)	(5,000 20,000)	(10,000, 20,000)	(5,000 20,000)

The willingness to spend based on the photos shown for the different housing estates indicate that the non-transformers in Sri have a better understanding of the 'goods' that they would like to have and they are the potential big spenders in transforming their houses as none of them are going to spend as little as MYR5,000.

Table 8.10. Reasons for Future Transformation by Non-Transformers (%)

	NON-TRANSFORMERS *n=61*			
Reasons	***Ara*** *n=16*	***Yam*** *n=21*	***Sri*** *n=24*	***All*** *n=61*
More rooms for current household	25	5	52	28
Room for relatives	19	0	0	5
Enlarging existing rooms	25	14	21	33

Just like the transformers, wanting to rent out the rooms is not even considered by the non-transformers. 19 per cent in Ara did consider room for relatives since the head of households are much older and relatives are expected to come for a visit or for a short stay.

8.4 AN EVALUATION OF THE DECISION TO TRANSFORM

8.4.1 Modelling Framework

By using various microeconomics data sources, Mendelsohn (1977), Shear (1983), Boehm & Ihlanfeldt (1986), Ziegert (1988) and Potepan (1989) had examined the activities related to renovation and repair work of owner-occupiers. Their results are relevant to the empirical work presented in this study because of their focus on the renovation expenditures of owner-occupiers.

Mendelsohn (1977) published one of the first papers that provided empirical evidence on home improvements. He examined the probability and size of non-zero expenditures for repairs and improvements using the Census Bureau's alterations and repair data. This data contains information obtained from a national sample of owner-occupiers for two winter quarters 1971-72 but may be biased because construction activity, particularly in the northern part of the United States, is generally slower in the winter. The estimating model includes house value, race, age, and income of the head of household, age of the housing unit, duration of occupancy, and values for the region of residence and city location.

Shear (1983) develops and applies a model of the housing rehabilitation investment which allows for simultaneous rehabilitation and move decisions. An important feature of his two period model is the recognition that transactions costs can lead households to consume disequilibrium levels of housing services. Households who do not move, base their benefit maximisation on their own marginal valuation of housing services while those who move, face the market price for housing services.

Boehm and Ihlanfeldt (1986) estimate a model of the home improvement decision which includes variables that measure the internal and external determinants of this decision. They emphasise the importance of including external factors like neighbourhood characteristics and the relative costs of improvements since their exclusion could bias the empirical results. Their model hypothesises that improvement expenditures will be a positive function of their expected impact on resale value, the increase in housing services resulting from the additional expenditures and the marginal valuation of housing services. Expenditures are expected to be negatively related to

the effective property tax rate and the price of maintenance and improvement expenditures. Boehm and Ihlanfeldt's sample includes owners of single-family detached housing units in 20 different neighbourhoods, each in a different central city. The dependent variable is the sum of maintenance and improvement expenditures reported for 1978 and 1979. The independent variables include household, neighbourhood and dwelling unit characteristics and several price variables.

The theoretical model presented in this study is based largely on the Mendelsohn's housing improvement model (1977) which is related to the theory of utility maximisation which to a certain extent is applicable in the study of the owner-occupier population of the low cost housing estates in the nearby areas of Kuala Lumpur. In his model Mendelsohn examines the dual roles of the owner-occupier as a consumer as well as an investor in single-family housing.

The approach treats housing both as a consumption good, which accommodates the household, and as an investment for the future. Financial and time constraints are the two factors to be considered in order to gain utility maximisation. Mendelsohn illustrates that a household utility function (U) is made up of housing (H), other consumption goods (C), assets (A), and leisure time (T), which are all constrained by income. For a household to gain utility maximisation (M), the following expression applies:

$$M = U\,(d;\, H, C, A, T) + \lambda_1 [\, WJ - P_k K - P_c C - A_f \,] + \lambda_2 [\, E - J - L - T \,] \qquad (1)$$

where:

d = household discount rate

H = the housing production function = G (H_o, K, L)

H_o = the initial quantity of housing

K = quantity of housing improvement undertaken

L = time spent by household on house improvements

C = other consumption goods

A = household assets, i.e., financial assets plus the housing good

T = time spent by the household in leisure activities

W = mean hourly wage of household

J = time spent by household in paid employment

P_k = cost of house maintenance

P_c = cost of other consumption goods

A_f = household's financial assets

E = household's available time

When total household income equals total household expenditure, Mendelsohn believed that the financial constraint is satisfied and in order for the time constraint to be satisfied, all the household's available time is allocated between their various work and leisure activities.

$$\frac{\partial U}{\partial T} = \frac{\partial U}{\partial L} = \frac{\partial U}{\partial H}\frac{\partial H}{\partial L} + \frac{\partial U}{\partial H} P_H \frac{\partial H}{\partial L} \quad \text{.....(2)}$$

In his second equation, the marginal utility of leisure time is equal to marginal utility of time spent on home improvements. Therefore, the house owner continues to improve the housing unit until the benefits from the improvement are equivalent to the value out of his leisure time.

$$\frac{\partial U}{\partial K} / P_K = \frac{\partial U}{\partial A} = \frac{\partial U}{\partial C} / P_C \quad \text{where} \quad \frac{\partial U}{\partial K} = \frac{\partial U}{\partial H}\frac{\partial H}{\partial K} + \frac{\partial U}{\partial A} P_H \frac{\partial H}{\partial K} \quad \text{.....(3)}$$

His third equation states that the marginal value of house improvement is equal to that of assets and other consumption goods.

$$W = \frac{\partial U}{\partial L}(P_K / \frac{\partial U}{\partial K}) \quad \text{.....(4)}$$

His fourth equation demonstrates a utility maximisation a house owner will use his own salary to decide whether to get paid help by using labourers, contractors, labour-saving equipment, etc., for his own labour.

Mendelsohn's housing improvement model hypothesised that people with higher incomes would spend the most and more frequently on changes on their housing. At the mean, an increase of one dollar in income leads to a 37 cent increase in the expenditure on improvements. The model also indicates that higher income households are more likely to hire outside labour thus reducing the likelihood of self-help. Younger households do their own repair work more frequently than do older ones. Black households have lower probability of spending on changes to their house but if they do, they tend to spend larger amounts because of the frequent use of hired labour.

However, it is argued that some higher income households may prefer to invest in additional houses rather than extending their housing unit. This may be true for households in a developed country like the United States where the housing stock affordable by the higher income group are readily available. For the low income group in a developing country, the supply of affordable housing is forever acute. So, whenever there is an increase in income for the household, it is most likely that it will be spent on improving the current housing unit. For this particular study in Malaysia, the emphasis is mainly on the improvement carried out in a housing unit where clearly a gain in habitable space has been achieved and some physical changes has been added to it.

Mendelsohn also hypothesised that the house owners with longer expected tenure tend to spend more on the changes to their housing unit because they will have the time to enjoy the good. This hypothesis may not be valid in certain third world countries where expected tenure is not measured in terms of one's own life span but also of one's ancestors and descendants as in the case of Ghana (Tipple, 1997). In general, however, Mendelsohn's model provides the framework

to enable the researcher to investigate the owner-occupiers in the low cost housing estates in Malaysia.

From the data collected on the transformers and non-transformers and based on the two-step econometric analysis used by the CARDO team, the following two criteria were examined.[3]

- The factors which had some bearing on firstly the household's decision to transform and secondly the amount spent on the process of transformation.
- The dependent variable 'transformation' was established with the value labels '1' for transformers and '0' otherwise.

The probability of the houses being transformed is then 'predicted' based on the household characteristics which had an impact on the process. The variables chosen for the above analysis are as follows:-

TRANS	=	0 -1 value: whether house was transformed between January 1993 and 1995 (recent transformers)
TRANCOST	=	Cost of transformation indexed to 1995 prices
AGE	=	Age of head of household
CAPITA	=	Per capita income
TOTEX	=	Total expenditure of household
HSESTAY	=	Numbers of years spent in the house
EMPSTAY	=	Numbers of years in current employment
RMS93	=	Total number of rooms as in January 1993
AREA93	=	Total area of house as in January 1993
ELSELOC	=	Number of other houses owned elsewhere

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3 All statistical input for this study was carried out by Dr G Masters

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EDUYRS = Number of years in education

HSETYPE = 1=Ara i.e., 2 storey, prefabricated flat

2=Sri i.e., detached timber house

2=Yam i.e., single storey terrace

STAYCITY = 0 - 1 value label: Respondent's intention to stay in the city[4]

DEPEND = Dependency Ratio

SELL = 0=not sell, 1=sell: Respondent's intention to sell house on leaving[5]

FAMILY = 0 -1 value label: Respondent's intention to pass house to family[6]

PLOT = Plot area

TOTHSE = Total number of members in household

AGEMOVE = Age of head of household when first move into house

ELDEST = Age of eldest child at the time of the survey

INCDIFF = Annual Total income - Housing estate mean income[7]

All the above variables relate to the basic characteristics of the households and the housing units, in accordance to the relationship specified by Mendelsohn's model (1977). For this evaluation the emphasis is on the variable 'Trans' which carries the value label '1' if the house has been transformed between January 1993 to 1995 and the value '0' if otherwise.

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4 Value labels for Staycity are as follows:- 1=Will return to village as soon as possible, 2=Working to return to village, 3=Will stay but keep in touch with village, 4=Will return to village on retirement, 5=Will always be in town/ city. Value label 1, 2, and 4 are grouped together as 'no intention of staying in city' and given new label as '0' while label 3 and 5 are grouped as otherwise and labelled as '1'.

5 Variable 'Sell' derives from variable 'Leave' where the value labels were as follows:- 1=Sell to next occupant at full value, 2=Sell to family member, 3=Pass to another family member, 4=Will not leave house, 5=Rent it out. 1 and 2 are grouped together as 'Sell' with value label 1 and the rests as 'Not sell' with value label 0.

6 Variable 'Family' is taken from value label 3 of variable 'Leave'.

7 Mean income for Ara, Yam and Sri is MYR14,168, MYR12,269 and MYR20,177 respectively.

Table 8.11. Variables Affecting the Decision to Transform
(Parameter estimates and standard errors in parentheses in order of significance)

VARIABLE	UNWEIGHTED
Area93	-0.019(0.007)
Family	-0.441(0.268)

Log Likelihood	-61.4
Goodness-of-Fit Statistics:	
(d.f. = 134)	
Pearsons Statistic	136.0 Not Significant
Log Likelihood Statistic	111.8 Not significant

The two variables above were included at the 0.10 (10%) significance level. This is a little higher than we might usually choose although only 'family' came close to this limit. By far the most important influence is the area of the house before transformation. The smaller the area of the house in January 1993, the more likely a householder is to transform in the next three years. The number of rooms in the house before transformation is not significant.

Second in importance is 'family' with a negative estimate (-0.441), implying that those householders who intend to leave their housing units to their families are less likely to transform. This seems odd but it must be remembered that this variable is included only at the 10% level of significance, i.e., it is debatable. The goodness-of-fit statistics show that the model is a reasonable fit; neither of the statistics is significant, i.e., the model fits the data quite well. The size of the house is another determining factor whether it will undergo transformation or not, i.e., owner/ occupier of a big house is less likely to transform.

The second stage of analysis estimates a linear model of the cost of transformation using the transformers as the source of data. The variables used are the same as those in the modelling procedure of the first stage. The model produced actually involved a standard $\log_e$ transformation to ensure that none of the assumptions were violated. This seemed to work well and the standardised residuals show no signs of being abnormal.

The equation for predicting the cost of transformation was found to be:

$$\textbf{Log}_{\textbf{e}}\textbf{(Trancost) = [6.84 + 0.00003(Incdiff) + 0.031(Agemove) + 0.0017(Plot) + 1.18(Staycity) - 0.281(Depend) - 0.0322 (Hsestay)]}$$

(where **Trancost** is the dependent variable and the rest are independent variables. **Incdiff** is the actual income for each household minus the mean income for the housing estate in which they happen to reside).

In the three housing estates surveyed, the income difference has a significant effect on how much is spent on a transformation. As expected, the more income a household has, the more they will spend on transformation outside the constricted sites or plots. The very low Incdiff value reflects that Incdiff values are in thousands of Malaysian Ringgit (MYR).

The effect of the age of head of household when moving into the house for the first time is also another significant factor relating to the amount spent on transformation. The positive sign indicates that, if the householder is older when moving in, the expenditure on transformation is likely to be more than those who are younger.

Another factor that leads to spending more on transformation is the size of the plot. Larger plots encourage more spending on transformations. This is evident in the Sri housing estate which had the greatest variety of transformations since the original houses were single units on large plots. In their attempt to improve their housing units, the tendency to spend more on the transformations is not unusual particularly among those householders who have the intention to stay in the city. Once the households made a decision not to move, it can be expected that they are going to stay in the same house for a long time and carry out the transformation activities as their demands change over their life cycle.

The two variables that are negatively related to expenditure on transformation are high dependency ratio and the length of stay in the house. The expenditure pattern for those with high dependency ratio would be similar to that as shown in Chapter Five where the bulk of the household budget was spent on food. Any expenditure on transformation would either be minimal or absent.

8.6 PREDICTING THE COST OF TRANSFORMATION AMONG EXAMPLES OF THE NON-TRANSFORMERS

Using the equation: Log_e(Trancost) = [6.84 + 0.00003(Incdiff) + 0.031(Agemove) + 0.0017(Plot) + 1.18(Staycity) - 0.281(Depend) - 0.0322(Hsestay)]

ARA - (Intermediate Plot)

Log_e(Trancost)	= 6.84 + 0.00003 (8400-14,168) + 0.031(40) + 0.0017(79) + 1.18(1) -0.281(8) - 0.0322(6) = 6.84 -0.0173 + 1.24 + 0.1343 + 1.18 - 2.248 -0.1932 = 6.9358
Transformation Cost	= **MYR1,028**

ARA - (Intermediate Plot)

Log_e(Trancost)	= 6.84 + 0.00003 (10,000-14,168) + 0.031(50) + 0.0017(79) + 1.18(1) -0.281(4) - 0.0322(5) = 6.84 - 0.017 + 1.55 + 0.1343 + 1.18 - 1.124 - 0.0161 = 8.5472
Transformation Cost	= **MYR5,152**

YAM - (End Plot)

Log_e(Trancost)	= 6.84 + 0.00003 (9,750-12,269) + 0.031(32) + 0.0017(123) + 1.18(1) -0.281(3) - 0.0322(0.2) = 6.84 - 0.007 + 0.992 + 1.2011 + 1.18 - 0.843 - 0.006 = 9.3571
Transformation Cost	= **MYR11,580**

YAM - (End Plot)

Log_e(Trancost)	= 6.84 + 0.00003 (8160-12,269) + 0.031(23) + 0.0017(111) + 1.18(1) -0.281(6) - 0.0322(11) = 6.84 - 0.012 + 0.713 + 0.1887 + 1.18 - 1.686 - 0.3542 = 6.5695
Transformation Cost	= **MYR713**

SRI - (Individual Plot)

Log_e(Trancost)	= 6.84 + 0.00003 (16,800-20,177) + 0.031(43) + 0.0017(300) + 1.18(1) -0.281(8) - 0.0322(3) = 6.84 - 0.01 + 1.33 + 0.51 + 1.18 - 2.248 - 0.0966 = 7.5084
Transformation Cost	= **MYR1,823**

SRI - (individual Plot)

Log_e(Trancost)	= 6.84 + 0.00003 (9,000-20,177) + 0.031(36) + 0.0017(348) + 1.18(1) -0.281(5) - 0.0322(4) = 6.84 -0.0335 + 1.116 + 0.5916 + 1.18 - 1.405 - 0.1288 = 8.1603
Transformation Cost	= **MYR3,499**

SRI - (Individual Plot)

Log_e(Trancost)	= 6.84 + 0.00003 (25,000-20,177) + 0.031(34) + 0.0017(380) + 1.18(1) -0.281(5) - 0.0322(4) = 6.84 - 0.15 + 1.054 + 0.646 + 1.18 - 1.405 - 0.1288 = 8.1712
Transformation Cost	= **MYR3,538**

Comparatively, non-transformers in Ara and Yam, who are owner-occupiers on the end plots are not likely to spend higher than those on the intermediate plots. Similarly, non-transformers in Sri do not appear to be likely big spenders even though their housing plots are larger than the other two housing estates. It seems odd because the annual household income in Sri is the highest among the three housing estates and in the questionnaire on their willingness to spend shows that they are potential big spenders. The only possible explanation is that the owner-occupiers could possibly have a second house and may rent these non-transformed house to augment their income. This indicates that end plot is not important determinant for higher spending in transformation compared with household size. One of the households on an end plot, with six members in a household can only afford a transformation work that will cost MYR713. The age of head of household at the time of moving in can also be a major influence on the cost of transformation. The income difference for all the above cases are of negative values because the household incomes are much less than the mean income for the respective housing estates.

CHAPTER 9

CHAPTER 9

SUMMARY AND CONCLUSIONS

9.0. INTRODUCTION

This chapter summarises the discussions in the previous chapters and draws the conclusion. It also examines the policy implications of the findings of the study with particular attention to the transformation in the low cost housing estates, namely Ara, Yam and Sri which are situated outside the city of Kuala Lumpur but within the state of Selangor. It concludes with recommendations and possible areas for further research.

9.1. SUMMARY OF DISCUSSION

As set out in Chapter One, the main aim of this study has been to analyse the process by which houses built as complete units by the public sector in Malaysia are being transformed by the owner-occupiers through their own initiatives and efforts, and their impact on the neighbourhood. The emphasis on the public low cost housing estate is because these houses appear unimpressive in terms of designs when they are first handed to the house buyers, despite inputs from professionals and housing experts in the government departments throughout the housing process.

Similar empirical studies on transformation carried out by CARDO also focused strictly on government-built estates in the urban communities of Ghana, Egypt, India, Bangladesh and Zimbabwe, where gradual shelter improvements have contributed to the improvement of the housing quality and the increase in the national housing stock. Literature reviews on transformation (Tipple, 1992, 1996 and 1997) are very much related to the housing adjustment and filtering theory where home improvements are more widely accepted relative to moving.

In developing countries, the filtering process is mainly about the relatively high income households moving into a residential area that was once predominantly inhabited by relatively low income

households (Kool et al, 1989). It is the filtering up of the housing units. In the case of Ara, Yam and Sri housing estates, it is mainly the non-target group taking advantage of the sale of houses originally provided by the authority for the low income households. This direct purchase of low cost houses by the non-target group appears to be a 'downward raiding' by the higher income households. But where are the target groups within the locality that are supposed to benefit from the government's social programme in housing the low income households? According to the headman and the representative of each housing estate, local households within the target group appeared to have had no interest in owning these low cost houses at the beginning of the project. They prefer to live in the nearby squatter areas where rental is much cheaper than the monthly repayment of the housing loan in the government built estates. Those who feared of being evicted by the authority, have agreed to participate in owning these small standard houses which will provide them with a sense of security.

Transformations in Ara, Yam and Sri are mostly carried out by the higher income owner-occupiers. This has led to the increase in the market value of dwelling units and the neighbourhood in general. The non-transformers in the three housing estates, consist mostly of households who rent and the low income owner-occupiers who have no family funds or savings to carry out the transformations. The latter may find it difficult to pay back the housing loan, let alone to carry out the extension to their houses.

9.1.1. Housing Provision

In Malaysia the responsibility of housing provision for the low income group is shared by the Federal, State and Local government. The Federal government is responsible for the budget allocation and also the overall urban planning, while the State controls the Local Government and land matters. The government perceives that the way for low income households to own houses is to build more for them. Yet experience has shown that no government in the world, with the possible exception of Singapore can accommodate the large and rapidly growing low income urban households mainly due to the limits of budget allocation for low cost housing.

The public sector in Malaysia has been involved in the provision of low cost housing ever since the 1950s. It is only during the Second Malaysia Plan (1970-75) that the formal private sector, i.e., the housing developers, began to participate in the construction of the low cost houses despite their reluctance in setting aside private land for such housing projects. This is largely due to cost. With the help of the State government, there were moves to find land in the peripheries but lack of infrastructure and essential utility services make such land unsuitable for the projects. However, quite a number of low cost housing estates like Yam and Sri were implemented on ex-tin mining areas, outside the main urban centres. The government realises that the profit margin for low cost houses is far too low for the private sector. However, the government hopes that cross-subsidy will enable the private sector to recover the losses incurred but few are willing to take up such challenges. Further incentives were then provided for the private sector in the form of waivers in building standards but not in planning standards, and more subsidies for the cost of building materials like cement and steel.

9.1.2. Targeting Subsidies

Governments in developing countries have several approaches to increase the access to housing for the low income group. In general, governments have realised that taking on the responsibility for housing every citizen is beyond their ability. At present many governments still engage in one form or another of inefficient or ineffective housing subsidies. Subsidies tend to distort housing prices and thus tend to distort housing decisions by consumers. They are, therefore, regressive. Only recently, the Malaysian government admitted failure in achieving its target and have allowed the private sector to undertake the project of constructing the low cost housing units as part of the enabling strategy. As it is, the number of houses provided for the low income group has been very limited and yet the government has allowed them to be misdirected to non-target groups just for the sake of speeding up the sale in order to boost the construction industry in particular and the country's economy in general. This further exacerbated the shortage of housing supply for the low income group.

The effect of subsidies on housing demand are complex. This is because of the variety of forms they take and the market settings in which they occur. Direct effects of subsidies are those that affect recipients of subsidies. This also includes the private sector that is building the low cost houses. Indirect effects are those affecting non-beneficiaries. Since subsidies in effect tend to lower the price of housing for beneficiaries, they would tend to increase housing demand. In general, government should seek to make housing more affordable to the low income group by increasing demand through the provision of mortgage finance.

9.1.3. The Enabling Strategy

The objective of the GSS to the year 2000 adopted by the UN General Assembly is to propagate an enabling approach to housing policy. This enabling framework involves both the public and private sectors and offers the alternative to address the housing needs of people at all income levels and particularly the low income group. The approach involves a partnership between governments, private institutions and citizens where heavy emphasis is placed on the creation and maintenance of appropriate incentives for the private sector to meet the housing needs.

Although Malaysia described her policy for housing as an enabling one, not much has been done in creating mechanisms which will ensure that the enabling strategy is fully adopted. The role of the informal private sector has not been fully acknowledged by the Malaysian authorities. It is the formal private sector that is frequently focused in the enabling strategy. Officials tend to associate the informal sector with the propagation of illegal extensions that have a negative implication. The shift in housing policy in Malaysia towards an enabling strategy seems to benefit the highly organised formal private sector rather than small scale informal private sector. Without doubt government will benefit if the formal private sector are successful but the informal sector is equally important as firms there create employment and income.

The key elements to be considered in order for the enabling strategy to be effective are as follows:-

- to reorganise the housing sector by establishing a body that can carry out effective control and co-ordinate social and economic policy;
- to provide a more supportive legal and regulatory framework for housing;
- to provide appropriate allocation and mobilisation of resources for infrastructure and housing finance;
- to rationalise subsidies;
- to ascertain adequate supply of building materials, and support enterprises not only by the small and medium scale industries but also the informal sector.

The low cost housing estates in Ara, Yam and Sri are examples of housing adapting itself to cultural, social and economic processes. The transformations that took place reflect a continuous process of adaptation by the households towards their developing needs, changing economic opportunities and preferences. It is the only method which enables a relatively large number of households to determine the components of the physical characteristics that their housing will reflect. As evidenced by the field survey, the process allows a closer match between households' sources of finance and their preferences in the improvement of their houses. Most of the transformations contribute to the improvement of the dwelling units in terms of larger space for the kitchen and living and dining areas.

9.1.4. Transformation As An Investment

One of the research questions raised at the beginning of the study is on the economic potentials of the transformation process among the owner-occupiers in low cost housing estates. In considering such potentials one tends to treat transformation as an investment. It is important to acknowledge that households transformed their houses not only for use but also as an investment to increase their personal assets, although many often do not admit it. Transformation is not just about consumption and use or about adjusting the house to meet the developing needs of the household's structure and size. It also involves decisions about investment, about using income available once other basic needs have been met, about maximising net income and about return on savings. Established transformers indicate a willingness to invest about 40 per cent of the

original price of the low cost house (MYR9,700 at the median) which is one year's income for the target population. A few of the established transformers have also turned part of their dwelling unit into an income generating enterprise, i.e. a hair salon, clinic, eating area, shops, etc. Transformers have, on average, increased the value of their house by 50 per cent. Almost all households believed that their houses had increased in value regardless of whether they have transformed or not. Assuming all houses in the low cost housing estates will eventually invest in transformation activity, the total investment was found to be equivalent to the government's expenditure for a similar number of dwellings, which would certainly sustain the economy among the informal sector.

As a result of increased value of the property, these dwelling units which were once low cost houses will eventually filter up. The nature of transformation is getting bolder. This represents a progressive upgrading of property and government have to accept this phenomenon in order to avoid the degradation of the newly built housing stock.

The next research question is what determines the households to transform and what is the outcome. Fifty-nine per cent of the transformers have considered moving but could not as there were no other houses available within the price range that they could afford. Most of the households believed that it is cheaper for them to remain in the low cost house and have it extended than to move out and buy a similar house in a non-subsidised market. Being owner-occupiers, households are motivated and have the incentives to maintain and improve their dwellings, neighbourhood and settlement. This will strengthen their sense of belonging.

Since moving or selling a house is not a popular practice among the low income households, provision should be made to allow them to carry out the transformations effectively instead of restricting the process. Transformations could be planned through either the enclosing of available private space within the plot as seen in Sri or through the actual extension of the building structure as exemplified in Ara and Yam.

Owners of low cost houses in Malaysia are allowed to extend their houses using standard plans available from the local authorities at MYR10. Plans for extensions and improvements are

provided and these would have automatic approval from the various state and local authorities. These plans indicate the types of permitted extensions and the range of building materials which could or should be used. The authorities hope that the benefits from this approach will help to reduce the number of illegal extensions, to stop the emergence of "slums" within the low cost housing estates and to minimise the costs of extensions by removing architects' fees and delays in obtaining approval from the local authorities. However, many house owners do not follow these standard plans strictly because the extended areas shown are minimal and the people do not agree with the form of construction that is being imposed. Furthermore they planned to gain a much larger area than that stipulated in the guideline which is mostly on how to build the front porch, how to cover an air well and how to extend the kitchen. Some have bought the guidelines just out of curiosity. The actual construction carried out for the extensions may be similar to that in the guideline, or be totally different, based on their own preferences.

Despite more than seventy per cent of the transformers do not bother to apply for building approvals, the quality of transformation is, in general, equivalent to the standard of the original dwelling provided by the government. In some cases it is much better. The number of households that have carried out self-built transformations using salvaged materials is insignificant. There are cases where additional rooms are smaller than existing rooms in a transformed house but this results in the occupancy rates being reduced. So, are transformers creating low standards in terms of housing quality? Yes, according to the officials, since these additional rooms do not meet the requirements in the building regulations in terms of minimum floor area, but who actually determine the standard in the first place? No, according to the households, since the standard is socially accepted and has not reduced the use value, government officials should accept that some transformations can only provide a minimal standard of shelter which is what low cost house is all about.

9.1.5. House Design

More space for the household is one of the criteria for which transformation takes place and the most important variable that affects the decision to transform is the floor area. This is more

important than the number of rooms. Households in the estates surveyed are not bothered about the number of rooms they have. All they are interested in is to have a larger floor area, i.e. a larger kitchen, or a larger living-cum-dining area. The smaller the area of the house in January 1993, the more likely a household was to transform their house in the next three years. As shown in recommended plot size (Figure 9.1), the areas should be left for extension will not be long and narrow as has been happening in the dwelling units of Ara and Yam.

There are a number of features in the design of the housing units that the respondents are not happy with. The main features that were unsatisfactory were the size of the kitchen and the bathroom. There was no specific question on kitchen and the bathroom but each time the question on the factors that affect the decisions to transform was asked, the common answer had always been, "more people joining the household". Respondents felt that these two areas are far too small, bearing in mind that meals are usually taken in the 9 square metres kitchen, and laundry is done in the bathroom which is only 3 square metres. The kitchen is normally the centre of activities for the majority of the households. Few households in Ara have turned the back lane into an open kitchen area where some of the activities can be done outdoors (Plate 5.5). In Ara and Yam housing estate, the original house is sandwiched between the rear and front extension. Extension to the kitchen in Ara and Yam is generally a minor transformation and all kitchens have direct access to the rear of the house via a back lane. As a result of this, windows in the back room of a terraced house now open into the internal space of the extended kitchen (Plate 6.10). Extensions on the front however, do not face such problem because households prefer to have one large room rather than subdividing the space. In Sri, the extension is wrapped around turning the original dwelling into a core house (Plate 5.4).

In both Ara and Yam house designs, the bathrooms have no external windows and are poorly ventilated via the kitchen. The toilets, however, have high level windows on the external facade, but once the kitchens are extended, the toilets are deprived of the natural daylighting and ventilation. To relocate the bathrooms and toilets in order to get natural ventilation and daylighting involves major reconstruction and resiting of pipe works which can turn out to be costly. So most

households tend not to bother and tolerate the original design. Due to limited space, all doors to bathrooms and toilets open directly into the kitchens which are inappropriate and not hygienic.

No canopy is provided at the main and rear entrance of the dwelling unit which causes the external timber doors in Ara (Plate 6.13) and the timber staircases in Sri (Plate 6.14) to rot as they are directly exposed to intense heat and heavy rain. The respondents felt that the authorities have deliberately not looked into this aspect of design and hope that the house owners will rectify the matter themselves and at their own cost. Had a proper porch been provided by the authority, house owners would be able to wall up the space at the later stage, thus increase the habitable area. The more floor area is added, the more tax the local authority will get.

9.1.6. Predicting Cost among the Non-Transformers

The non-transformed houses in the three housing estates are mostly occupied by households who have no funds to carry out the transformations and households who rent. Those who rent never alter, let alone extend, their rented premises. Some of these rented units appear dilapidated and badly maintained, i.e., with external paint peeling and cracking, timber doors and staircases rotting, etc. Being renters, they are not anchored to the area and, furthermore, they seldom feel that they belong to the neighbourhood as they are just living there temporarily before they too, purchase their own house. If renters should exceed the number of owner-occupiers in these estates, the dwelling units may deteriorate due to lack of maintenance.

From the factors in the transformation decisions and variables, it is possible to predict the cost of transformation among the owner-occupiers who are non-transformers using the modified Mendelsohn's model (1977). Location of the housing estate, built-up area and size of plots are important determinants in the cost of transformations. The calculated probable cost of the first phase of transformation in the three housing estates ranges between MYR1,000 and MYR15,000. There is a tendency to assume that the transformation on an end plot would cost more than on an intermediate plot but this is not necessarily so. Prediction on cost of transformation can be very

useful for the local authority as they could forecast their expected revenue in terms of property tax based on the anticipated transformation that will be carried out by the non-transformers.

9.2. PROFILE OF HOUSEHOLDS

9.2.1. Household Income

Motivations and decisions made by owner-occupiers regarding transformations depend to an extent on their income and expenditures. In the analysis of annual household income distribution for the three selected housing estates, it was observed that the mean household income is higher than the target group. The percentage of respondents with income below MYR9,000 who form the target group is only 22 per cent while 21 per cent have an income above MYR18,000. In other words, 78 per cent of the respondents who have benefited from the low cost housing projects are outside the targeted group. This implies that the state authority involved has not followed the eligibility criterion on household income in the major selection of candidates for these low cost housing projects. This is particularly true in Yam and Sri where the state authority has allowed the lower middle income to purchase some of these houses rather than allowing the houses to be left vacant for an indefinite period of time as there were no buyers from the low income households within the vicinity. The complaint about the beneficiaries of the low cost housing programme is not new. Throughout four decades of the low cost housing programme, the complaint from the public in general has always been that the target group has never fully benefited from these housing schemes. So is the idea of the target group proving to be meaningless? Not if the eligibility requirements are strictly adhered to.

The housing allocation process is quite elaborate so as to ensure that only eligible applicants will be allocated the low cost housing units. However, in reality it is impossible for the state to know the true level of household income among the applicants. If this is true, does this mean that the annual income of MYR9,000 is not an accurate nor reliable indicator to select the target group these low cost housing schemes? The following reasons may be true for some of the applicants with high mean household income in these three housing estates:-

- the houses were completed and occupied over a period of four to five years so the time lapse between application and occupancy may explain the differences in income levels;
- it is probable that additional members of the households may have since entered the employment market and, thus, could have contributed to the rise in income levels over time;
- the respondent's household income estimated from the study takes into consideration contributions from all members in the household but, during the application process, these sources of incomes were not likely to be reported.

The high income levels should cause no concern if the above-mentioned circumstances prevail. Of course, there are authorities which strictly adhere to the standard guideline on income. However, probable misreporting of income at the time of application and the rise in income levels over time does indicate a need to review the sale policy on low cost houses, the guide on the selling price, and the whole issues of subsidies and choice of sites for these low cost housing projects. This is discussed later in the chapter.

9.2.2. Household Expenditure

The data on expenditure are used as a proxy for income particularly among those who are not able to reveal or who are reluctant to disclose their income data. This proves useful as it enables us to understand the spending pattern of the households. The amount spent on housing is generally much lower than on food, i.e., 15 per cent and 40 per cent respectively. However, the proportion of household's income spent on transformation increases with increase in income. The non-transformers were asked about their willingness to spend on intended transformations and half of them in Sri are willing to spend MYR10,000 which is more than the annual household income of the target group. However, very few of the owner-occupiers in Yam indicate that they are willing to spend on an intended transformation. Their intentions are restricted by the narrow frontage (6 metres) and the non-flexible design of the single-storey terraced housing unit. If this is what the officials are hoping for, then this house design can be considered as achieving the authority's objective. On the other hand, the willingness to spend MYR10,000 by each house

owner in Sri is going to encourage the small and medium scale construction industries and certainly there will be a chain of income generating activities within the area.

The monthly rental paid by tenants for a transformed house is much higher than the monthly repayment for the loan paid by the house owners. As a result of this, tenants are less likely to stay in the housing estate for a long time. They too are hoping to be house owners one day and renting a house is just a temporary measure for them.

9.3. RECOMMENDATIONS AND POLICY IMPLICATIONS

The third research question raised in Chapter One is what are the implications on the government in terms of the formulation of the housing policy and the provision of housing for the low income group. Clearly, the design or formulation of housing policy must begin with the recognition that housing is a multi-dimensional commodity. It includes the dwelling unit, the plot on which the dwelling stands, the infrastructure services provided to the plot, amenities and employment opportunities. There must be a major change in philosophy with regard to low cost housing provision. The idea that a dwelling unit is a finished product should be abandoned (Carmon, 1992). All non-flexible house designs should be removed from the drawing board at all levels of government. Housing policy must respect or acknowledge private preferences for housing attributes, if it is to meet the consumer demand.

The researcher has reached the conclusion that owner-initiated transformations should be encouraged as part of the overall improvement to the quality of dwellings in the low cost housing neighbourhood. The findings of the study suggest a number of recommendations which are directly applicable to the programming and the implementation of future low cost housing estates in Malaysia. However, these recommendations should be initially implemented on an experimental basis and, ideally, be evaluated before they can be applied on a national scale.

9.3.1. The Housing Finance and Loan Facilities

Since formal financial institutions will not take the risk of providing loans to low income households, the government has set up specialised lending institutions to allow them to borrow at subsidised rates. The housing loans available for the intended house buyers vary and the amount of loan given depends on individual's total income and repayment capacity. Clearly, there is no absence of finance facilities for the low income households to purchase houses but why is the government taking the risk which financial institutions are trying to avoid? Is the government expected to take such a risk? Government could afford such risk because any failure to recover costs due the presence of defaulters are covered by subsidy (Renaud, 1987). Despite the availability of all sorts of loans strictly for purchasing houses, there is not a single loan available to enable the low income households to extend or improve their dwelling units. House owners are only allowed to withdraw from their EPF contributions to cover the costs of house improvements, provided that they have not made any withdrawal before. However, most house buyers tend to pay the down payment by withdrawing a portion of their EPF contributions. With households not intending to move or sell their houses in these government built estates, there should be loans available for them to carry out the necessary extensions to their houses. By not providing the necessary loans for extensions, the government is indirectly not encouraging transformations and will gain nothing from such restrictions.

The households in this study generally carried out the transformations in one or two phases only, no matter what the plot size is. Very rarely so far do transformations exceed the two phases. Among the established transformers, it is the second phase of transformation which is the most elaborate and, in most cases, this would be the final phase. The area gained in and cost of the first phase is smaller than the second. The established transformers has spent MYR7,000 at the median for the first phase and MYR10,000 for the few second phases. However, the mean total cost of transformation among the established and the recent transformers is MYR15,000 and MYR13,000 respectively. Ninety-two per cent of owner-occupiers' main source of finance for transformations are from their savings and family funds. This clearly shows that households improved their housing conditions at no cost to the government at all.

Both financial institutions and house owners are aware of the regulation in credit financing whereby low cost housing units are not allowed to be used as collateral for any form of loan if the initial mortgage is still outstanding. The reason for this regulation is to ensure that the target group will not be saddled with too many loans. Furthermore, the authority does not wish to see financial institutions benefiting from the low cost housing programmes which are highly subsidised and are meant to benefit the low income group.

Some older head of households receive financial assistance from their adult working children, even though they may not be living together in the same house. The self-help transformations are much cheaper than the normal transformations carried out by single contractor or tradesmen as there are no labour or materials cost involved. However, very few households used self-help to reduce the cost of transformation as they are too busy with more than one job to augment their income. For those who carry out the self-help transformation, most of the materials used will be salvaged from nearby building sites.

Formal sector finance should be made available for low income owner-occupiers who want to extend or improve their current housing conditions. The owner-occupiers who intend to carry out extensions should be allowed to use their low cost houses as collateral in their application for the loans. The extension will not only increase the use value but also the exchange value of the house. Indirectly, this will also encourage the intensity of development within the housing estates. Without formal sector finance, households with no savings or family funds are unable to extend their house effectively. This could either lead to the increase in housing stress within the household, which can lead to all sorts of social problems, or the owners would rent out their low cost houses, which may deteriorate over the years as renters are not bothered with the maintenance of their rented homes as explained earlier.

9.3.2. Selling Price

The study indicates that affordability is not a major problem among the households in these three housing estates. The median annual household income for Ara, Yam and Sri is MYR12,000,

MYR12,000 and MYR17,580 respectively. If the non-target group is expected to buy these low cost houses, then the current policy on sale of low cost houses should not have applied. The price of a low cost house is fixed by the Federal government which is still keen to keep it at MYR25,000, which MHLG officials considered affordable to the low income group. If this is the case, then the authority should strictly abide by all eligibility criteria and not use their discretionary power when assessing the applications. For example, with the Special Low Cost Housing Programme (SLCHP) which was carried out in 1986 to 1988, there were requests to waive the MYR9,000 household income because the main concern of the authority at that time was to speed up the sale of these houses, thus enabling those earning MYR18,000 or less to be eligible to apply for these houses. The allocation of low cost houses to income groups higher than the target group can be positively accepted in terms of housing supply as the owner-occupiers tend to increase the market value of these houses as soon as they move in by carrying out all possible extensions. However if similar requests are being made for every low cost housing estate then there will be serious competition between the target group and the higher income group. Looking at the annual MHLG statistical data and the reports for the five-year developmental plan, it is of no surprise if the demand for low cost houses is forever on the increase.

With the exceptions in the state of Penang, Johor and Sarawak which have raised the price of the low cost houses and the eligibility income levels, the nationally fixed price of MYR25,000 for the remaining ten states in Malaysia is inappropriate. Furthermore MYR25,000 is not the actual cost of construction. Based on the project cost, each housing unit cost less than the sale price of MYR25,000 except for Sri. From the breakdown of price submitted by the timber company, a timber house in Sri only costs MYR12,750 to build. The findings on the cost of rebuilding also indicate that households can build similar housing units to those produced by the government at a much lower cost or for MYR25,000. They could even build a larger house and with better layout. The informal sector which has no administrative and overhead cost to cover would carry out these constructions for them.

Since the cost of land and infrastructure is borne by the state government and the local authority respectively, one would expect the actual cost of construction to be the selling price for these low

cost houses. However, officials from the state authority defended the difference between the selling price and the actual cost of construction as covering the administrative cost incurred throughout the housing process.

A detailed marketing survey on low income households that are willing to participate in the government built estates should be carried out prior to the implementation of the project. This will ensure that only the target group will benefit and that there will be no difficulty in the sale of these houses as exemplified in Yam and Sri.

If government is still keen on the housing programme of building more low cost houses, then, MHLG should incorporate the price of land, and withdraw the subsidy if these houses are to be sold to the non-target group. The selling price should be the actual cost of construction plus all the administrative costs incurred. This will nullify the problem of redistributing income upwards by allocating a subsidised rationed good to the not-so-poor.

9.3.3. Intensity of Development

The government is always keen on high density development particularly in the main urban centres as part of their land saving strategy and yet, when it comes to low cost housing layouts, the provision for road rights and building setback reservations seem over-generous. This is obvious in Ara, Yam (Phase III) and Sri which were implemented about five years ago. These layouts not only encourage the urban sprawl owing to the reduction in the availability of land for other urban uses but will also encourage over-generous land consumption. It can be argued, that since the cost of land is heavily subsidised or being borne by the state authority, the Federal authority is not affected by this huge amount of land consumed for road rights and setbacks. Had the planning layout being prepared by State officials with no interventions from the Planning Department at the Federal level, perhaps reductions on setbacks and road rights could have been looked into and savings in terms of land consumption could have been achieved.

Extravagant subdivision of plots in Sri may have resulted in the increase in cost per unit of provision of public infrastructure, i.e., water, drainage, electricity and roads. For this purpose,

more and more rural land is acquired and turned over for urban uses. The costs for such provision can become unduly high in terms of local authority's expenditure and in the long term is not sustainable (Tipple, 1997). However, with transformation, the low-density development will eventually turn into high density development that could have been achieved if the land use on the individual plot was intensified.

As development grows there is pressure to intensify the use of land around the towns of Batang Kali and Serendah which is not far from Yam and Sri respectively. These two housing estates may appear to be peripheral when they were first developed but, in a few years time, they could be quite central to the built-up areas. The development in these three urban areas is so rapid that the transitional period between low density and high density will probably be short. At the start of the housing estates in Ara and Yam, the authority was determined to have maximum density by having narrow plots for each dwelling unit. Sri, on the other hand, had larger plots and this has encouraged house owners to spend more in transformation, an indication towards high density development for the area. From the analysis, the total cost of transformations at the median for the narrow plots of Ara and Yam is MYR3,400 and MYR2,900 respectively while in Sri, it is MYR7,000. In the case of Sri, it is obvious that the loss in density at the start of the housing project marks the beginning of a significant gain in the built-up area at a later stage.

Thus, the generous public open spaces and the over provision of road rights and building setback reservations needs to be reviewed in favour of larger plots. The general tendency in the present housing policy is to reduce the size of the plot for each dwelling unit but the reduction should instead be focused on the generous provision of road rights and building setbacks within the housing estates. Not only is the reduction of these spaces likely to increase the number of houses per housing estate but it would also reduce the huge infrastructure costs which are borne by the Local Authorities. Whatever the plot size is, whether it has a narrow or wide frontage, at least the space should be utilised for habitable use instead of being left vacant with no specific purpose.

Currently, the plot width for a double storey and single storey terraced housing is 4 metres and 6 metres respectively and the depth varies between 16 to 19 metres. This study recommends the

new plot size for both single and double storey buildings to be 9 metres by 10 metres. Both the width and the depth for the built-up area are on 3000mm grid modules. These dimensions will be in line with the modular co-ordination which was introduced in 1986 by MHLG. Ironically, none of the previous and current house designs for the government built estates adopted these modules. The modular approach may appear to be restrictive in terms of flexibility but this is only a guide towards orderly extensions. Adopting the modules is economical in terms of minimal wastage of building materials as these are manufactured based on the multiples of the modules (Appendix VI). Reducing unnecessary cuttings of timber frames, building panels, glazing, etc., will result in speedy construction and this will save time and cost.

Further to that, the proportion of space occupied by individual housing plots needs to be maximised and the infrastructure provisions to be minimised in order to encourage the intensity of development within the housing estates. As mentioned in Chapter Six, the change in the floor space index for smaller plots (Ara and Yam) is 38 per cent while in the larger plots (Sri) it is 95 per cent at the median. This indicates that the large plot in Sri proves to be uneconomical since the coverage is not as high as those in the small plots like Ara and Sri. In order to achieve an efficient plot size, the change in floor space index should be between 50 to 60 per cent. This will create a balance between the amount of space provided and the amount of space in which a household is likely to operate.

For a proposed two storey terraced house with a floor area of 72 square metres on a 90 square metres plot, the floor space index is 0.80. Assuming that the gain in habitable area after transformation is 36 square metres, the new space index is then 1.2. Thus the change in floor space index on the recommended plot of 9 by 10 metres is 50 percent and this is economical in terms of coverage.

9.3.4. Conservation of Resources

The conservation of resources is an important factor within sustainable development. The policy makers should recognise that the ordinary house owner has a role to play in planning and

of their house. This indirectly assists the government in reducing the number of badly maintained buildings in the low cost housing estate and will even delay the need to build more new units.

As part of conservation of resources, the toilet and bathroom should be located at one of the rear corners of the plot and connected to the main house with a corridor. The high level fixed-glass louvered windows for the toilet and bathrooms must be installed on the external wall facing the back lane. In this way, no matter what the future extension is expected to be, the bathroom and toilet will still have natural ventilation and daylighting instead of relying on mechanical ventilation and artificial lighting. As it is, the households generally do not tamper with the existing pipes or relocate the existing septic tank when carrying out the transformation process. Apart from the toilet and bathroom's location, it would be almost effective for the intended transformation to take place, if one of the external walls are built as close as possible to at least one boundary. In this way, the space left open is maximised and this will help to create more functional rooms instead of building deep rooms with narrow widths.

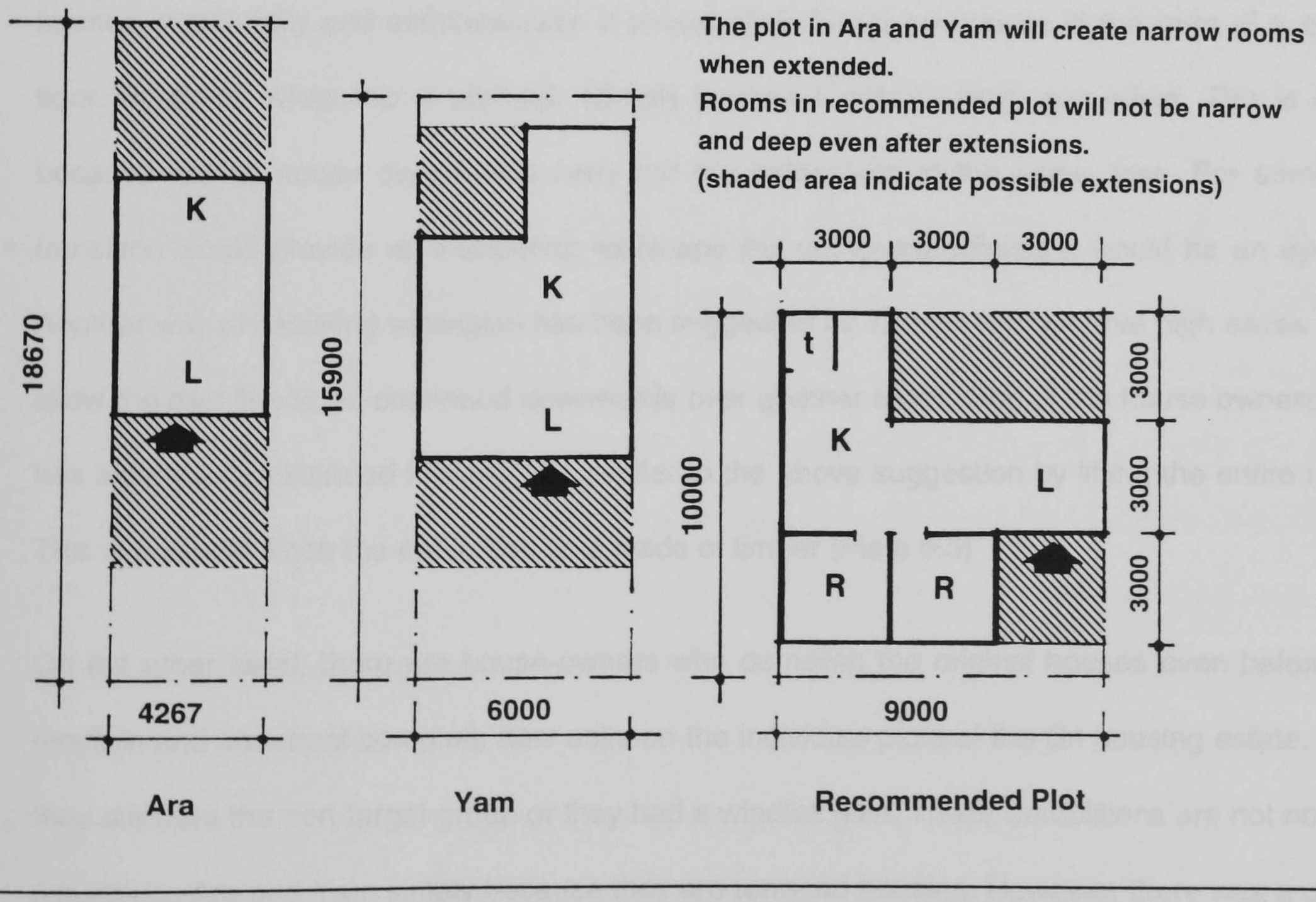

Figure 9.1 The Recommended Plot Size

Many terraced houses do not permit significant extension opportunities as clearly seen in Ara and Yam. Yam's single storey terraces only allow single storey extensions. None have extended more than one storey. However, Ara, which has double storey structures, allows extensions of the same height.

Houses for the low income group were officially designed and constructed based on the affordability of the average household income but not on the average household size. They are also designed for single household occupation and not for multiple occupancy. This answers the fourth research question regarding the main criterion considered by the professionals at MHLG in terms of the official house designs. The transformations that take place are valuable because they clearly show the possibilities of what could be achieved in terms of design and structure. This contributes to the long-term suitability of the housing and the sustainability of the neighbourhood.

Government should stop building single storey terraced houses for the low cost housing estates throughout the whole country. Even if the government insists to continue building single storey houses, structurally and architecturally, it should allow future extensions in the form of a second floor. However, when this is allowed, officials foresee a missing-tooth gap-effect. This is simply because not all house owners will carry out the extensions at the same time. For some, the transition would provide an interesting roofscape but yet to the officials it would be an eyesore. Another way of assisting extension has been suggested by Tipple (1997) in that high eaves would allow the roof line to be continued downwards over another room. One of the house owners in Sri has ingeniously extended the roof line similar to the above suggestion by lifting the entire house. This is possible since the entire house is made of timber (Plate 6.9)

On the other hand, there are house-owners who demolish the original houses even before they move in and construct complete new units on the individual plots of the Sri housing estate. Either they are from the non-target group or they had a windfall gain. These demolitions are not normally possible in Ara and Yam simply because they are terraced housing. However, there was a case in Yam where the house on the corner plot was completely demolished and a new design sprung up. It is well-designed for a corner plot and the house owner maintains the same height as the

rest of the single storey buildings. The new design is able to harmonise with the existing housing scheme and yet in close up it is interestingly different. Obviously, households who demolished these houses have not conserved the resources that were originally provided but the usable life of their newly designed houses is likely to be long.

9.3.5. Process of Transformations

The transformation activity in the three housing estates is quite radical. 74 per cent of occupants in the estates are owner-occupiers (89 per cent in the established transformers and 91 per cent in the recent transformers). The fifth research question raised is the contributory factors that lead to the transformations of these low cost houses. Much of the owner-initiated transformation process discussed is determined by decisions of the owner-occupier himself/ herself, made on the basis of his/ her life cycle, the age when he/ she moved in, the length of his/ her stay in the house, his/ her education level and his/ her income. The factors influencing choice of transformation depends on the state and the size of the household whether it is a growing family, young family or diminishing family. If the demand for improvement is not met and depending on their tolerance level, the affected household will eventually face housing stresses.

Guidelines on extension works by the Local Authority need to be reviewed. Although most house owners follow these guidelines in their extension works, very few bother to return the application slip that comes together with the guideline as part of the automatic approval for the extension works. A penalty clause should be included on the application slip where a hefty fine will be imposed upon those who carry out the extension without submitting the application slip. Officials from the local authority may then use these slips as an indicator to carry out the survey of the newly extended house in order to estimate the new property tax. Local authorities have been encouraged to improve their tax collection powers and, with house owners returning the application slip, this will certainly improve the tax collection and will provide sustainability to the organisation.

9.3.6. Housing Quality

Of late, officials often pride themselves on the use of high quality external finish for the new houses in the low cost housing estates, i.e., facing bricks and concrete roof tiles. Very often officials and politicians alike tend to be obsessed with the general appearance of the houses instead of paying attention to the urgent housing needs of the low income group. Most low income households are willing to accept houses of ordinary plastered brickwork and lightweight roofing materials because these will be cheaper when carrying out the intended transformation. Once the authority starts using high quality material for the housing estates, households will then be required by the authority to preserve the same quality in terms of the external facade and for some, this can be costly. This requirement imposed by the authority in their guideline may indirectly restrict transformations. Owner-occupiers prefer an increase in floor area to high quality building materials. Unlike a larger floor area, high quality building materials have no use value to some households.

Among the three housing estates, the detached timber house in Sri is an almost ideal design for transformation. The main part of the house which is 1.8 metres above the ground level is on timber stilts. The lightweight timber construction is easy to dismantle or can be raised to almost any required height. According to MHLG officials these houses were not designed with the intention of allowing the owner to build any rooms below the main house but transformed they did. Since the extensions are very often wrapped around the original house, there is a tendency for the researcher to treat a low cost house as a core house similar to that built for the site and service projects. However, MHLG officials are quick to defend a low cost house as a whole dwelling unit, complete with all the necessary basic rooms, i.e., bathroom, toilet, kitchen, living-cum-dining room and bedrooms, and the intention is that no major transformation will take place in these housing estates. However, there are many households who are not able to cope with or adapt to the housing conditions provided. So, the decision to move or to improve arises quite quickly. But are they allowed to make such a decision? Even if they are not allowed to, nothing will stop them from improving their housing conditions.

All internal walls separating the rooms in a low cost house should be made of timber framed partition. This will give greater flexibility to changes in room sizes. A brick wall is very restrictive in terms of flexibility. To demolish a brick wall is more costly than to dismantle a timber partition. Furthermore, there is no restriction in the UBBL regarding the use of timber for the internal partitions. Only party walls in a terraced house have to be of brick or concrete as part of the fire requirement. Prefabricated building systems consisting of precast concrete panels should not be encouraged because they offer minimum flexibility and are alien for domestic architecture. On the other hand, timber is ideal for domestic buildings and, in the long run, this will support the local timber industry. The authority should also consider the appropriate external finish for future low cost housing estates and not be carried away with expensive building materials like facing bricks and concrete roof tiles. It is the quality of life for the households that needs to be considered, above the high quality finish for the dwelling unit.

9.3.7. Property Taxes by the Local Authority

The general attitude of the local authority is very lax on the whole issue of alterations and extensions due to lack of technical staff. Local Authorities have not demolished any parts of houses that have been extended and neither have they made any serious effort in the amendments of the property tax, let alone making compulsory collections from households who have transformed their dwelling units over the years. As part of the revenue generating process Local Authorities should impose new annual property tax on the house owners based on the current habitable space. In other words, the larger the extension, the more the households should pay in terms of property tax. At the time of the survey (April 1995), all respondents in Ara and Sri are still paying the standard property tax of MYR60 even though 89 per cent of the 183 respondents are established transformers (i.e. transformations carried out before January 1993). For the time being, there is not much difference in the gain in total habitable area between established and recent transformers (i.e. transformations after January 1993). Both established and recent transformers gained around 30 square metres of habitable space and none of these had been taxed for the last two years.

All the above can be summarised in the following recommendations:-

- formal sector finance should be made available to low income group to enable them to carry out the transformations;

- detailed marketing survey is required, prior to implementation of any low cost housing project;

- subsidies should be removed and price of land to be included in the price of the houses, if low cost houses are to be sold to the non-target group;

- space for individual housing plot should be increased and space for roads and setbacks should be decreased;

- width of building plot should be increased from the usual 6 metres to 9 metres;

- building of single storey housing units for future low cost housing projects should not to be encouraged;

- a penalty clause should be included on the application slip to ensure households submit for planning approval;

- more use of timber for future low cost housing projects is to be encouraged;

- new property tax should be imposed on low cost housing units based on the gained habitable space after transformations;

9.4 AREAS FOR FURTHER RESEARCH

In this study the impact of transformation has been analysed in terms of design and cost within the public low cost housing. The findings are certainly not exhaustive. A similar methodological approach can be applied for public low cost housing schemes that were built during the earlier development plans, i.e., in the 1950s, early 1960s and 1970s, in other urban centres in the country. The transformations in these housing estates could probably have reached the maximum and the estates could have turned into high density development. It would be interesting to look at the living conditions that had been created over the years. How have the estates deteriorated or improved? Is there an increase in population in the older estates? Since most of the house owners in the older estates had settled all their housing loan, would there be a drastic change in house tenure and house ownership?

As for non low-cost, private sector housing, the number of houses that have undergone the process of transformation is enormous but their sets of constraints and preferences would differ from those in the low cost housing estates. The significant role of the informal sectors in the transformation process is currently been ignored and detailed study on this sector could provide a different understanding of the economics of the construction industry.

This study has only looked into the transformation activity of the established and recent transformers in three different low cost housing estates regardless of their ethnicity. However, it would be interesting to study the differences in transformation activities among the three main ethnic groups in Malaysia namely the *Bumiputera,* Chinese and Indians, particularly in terms of design and cost based on their respective culture and socio-economic background. There is also an urgent need at a national level to initiate research in terms of flexible house designs on an optimum plot which encourages transformation among the low income group as part of the enabling strategy.

A new model could be developed to predict the cost of transformations in the non-low cost housing estates which can be high. Higher costs of transformations means larger extensions which subsequently lead to higher income for the local authorities.

9.5 CONCLUSIONS

In this chapter, we have summarised the discussions from previous chapters by first reviewing the literature which forms the conceptual framework of the study. Then the problems of low cost housing were examined followed by an analysis of the impact of transformation on the neighbourhood and on the housing policy for the low income group. The major significance of this study lies in the demonstration that independence and freedom of choice in transformation of houses can be expressed within the framework of the current housing policy. The low cost housing estates in Ara, Sri and Yam can be seen as examples of housing as a dynamic process, adapting itself to cultural, social and economic circumstances. This was not a single phase operation, but rather a continuous process of adaptation of the physical environment to

developing needs, changing opportunities and preferences of the households. One of the remarkable characteristics of the transformation activity is the ability of the transformers to produce various style in house designs out of the spartan and monotonous trademark of public sector housing.

From this study, we conclude that transformers are improving the condition of buildings originally designed for a low income group which are unlikely to have been suitable for their way of life if the houses had remained the same. Owner-initiated transformations should be encouraged as part of the improvement in the low cost housing estates. The house forms, densities, and other characteristics are adjusting to their surroundings while, at the same time, becoming more flexible in the functions which can take place within them. Owner-initiated transformation should be part of the long term future of these housing estates in order to allow the house owners to meet their developmental and changing needs. It could lead to a better understanding of the future of households in the low cost housing estates and their inevitable involvement in a number of decisions regarding transformations and the management of their environment in general.

The owner-initiated transformation process makes a significant contribution to the national housing stock. It is the only way which enables a relatively large number of households to determine the components of the physical form and method of construction for the extension of their dwelling units. The process thus allows a closer match between individual resources and expectations than any form of market product designed for the average household. As evidenced by the field survey and statistics, the owner-initiated approach creates enthusiasm and appeals to a wide range of the Malaysian population. It should be applied directly in order to meet the national housing goals. Lastly, these low cost housing estates should be acknowledged as generators of more housing rather than as part of government's social development theme.

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APPENDIX I

PROJECT DETAILS OF LOW COST HOUSING ESTATES

LOCATION: KAMPUNG SUNGAI KAYU **ARA**

DETAILS OF PROJECT:-	SAMPLE SIZE & ITS DISTRIBUTION:-	
Project started in November 1984	Transformers:	26
Completed in December 1987	Non-transformers:	16
Occupied in December 1989	Number of respondents:	42
Cost of project - MR3,163,380		
Contractor - PKNS Praton Haus Bhd		
Number of houses - 131 units		
Selling price in 1989 - MR25,000/=		
Price updated to **1995 value - MR31,236/=**		

LOCATION: KAMPUNG BATU 30, ULU **YAM**

DETAILS OF PROJECT:- YAM I & YAM II	SAMPLE SIZE & ITS DISTRIBUTION:-	
Project started in November 1966	Transformers:	23
Completed in 1969	Non-transformers:	17
Occupied in 1970	Number of respondents:	40
Cost of project - (not available)		
Number of houses - 82 units		
Selling price in 1970 - MR5,600/=		
Price updated to **1995 value - MR14,322.4/=**		

DETAILS OF PROJECT:- YAM III	SAMPLE SIZE & ITS DISTRIBUTION:-	
Project started in March 1987	Transformers:	13
Completed in January 1991	Non-transformers:	4
Occupied in 1991	Number of respondents:	17
Cost of project MR1,672,546		
Contractor - Padu Segi (M) Sdn Bhd		
Number of houses - 115 units		
Selling price in 1991 - MR25,000/=		
Price updated to **1995 value - MR28,984/=**		

LOCATION: KAMPUNG **SRI** SERENDAH

DETAILS OF PROJECT:-	SAMPLE SIZE & ITS DISTRIBUTION:-	
Project started in March 1987	Transformers:	60
Completed in November 1990	Non-transformers:	24
Occupied in 1990/91	Number of respondents:	84
Cost of project RM10,449,781		
Contractor - Melati Construction Sdn Bhd		
Number of houses - 412 units		
Selling price in 1991 - MR28,984/=		
Price updated to **1995 value - MR28,984/=**		

ARA, YAM & SRI (740 houses)	**TOTAL RESPONDENTS:**	**183**

APPENDICES

APPENDIX II

CORE QUESTIONNAIRES

COVER SHEET

QUESTIONNAIRE FOR TRANSFORMATIONS SURVEY

1. House Identifier

Ara	1
Sri	2
Yam	3

2. House Location

End Lot	1
Intermediate Lot	2

3. Address

4. Household Identifier

Chinese	1
Indian	2
Malay	3

5. Sex of Head of Household

Male	1
Female	2

6. Do you own this house?

Owner	1
Owner's representative/ caretaker	2
Family ownership (rent free)	3
Renter/ tenant	4

7. ~~H~~ave you transformed this house?

No	0
Yes	1

(If the house has been transformed , use questionnaires for **'transformers'**; if not, use questionnaires for **'non-transformers'**).

Interviewer Identifier:	
Date:	/ /95

QUESTIONNAIRE FOR OWNER WHO HAVE TRANSFORMED

(Interview the head of household who occupy the house as the owner. Also interview one tenant household if there are any).

8. Who among your household motivated you to transform this house?

Self	1
Wife	2
Others	3

9. How did the house come into your posession?

Bought as a government servant	1
Bought as a non-govt servant	2
Bought from individual	3
Inherited	4
Rent from individual	5

10. Do you own a house elsewhere?

No	0
Yes	1

11. If yes, where is it?

In the village	1
In another town (not hometown)	2
In the same area as this house	3

12. How old are you? (years) ____

13. How long have you lived in this house? (years) ____

14. How long have you worked for your current employer or in your current business? (years) ____

15. What is your highest achievement in your education?

No education *(0 yr)*	1
Primary education *(6 yrs)*	2
Religious education *(6 yrs)*	3
LCE *(9 yrs))*	4
MCE *(11 yrs)*	5
HSC *(13 yrs)*	6
College/ University *(<15 yrs)*	7

16. Do you intend to stay in the city?
(Listen and tick appropriate answer)

Will return to village a.s.a.p.	1
Working to return to village	2
Will stay in city but keep in touch	3
Will return to vill. on retirement	4
Will always be in town/ city	5

Do you own any of the followings?

17. Telephone

No	0
Yes	1

18. Television

No	0
Yes	1

19. Radio

No	0
Yes	1

20. Stereo

No	0
Yes	1

21. Video

No	0
Yes	1

22. Air-conditioner	No	0
	Yes	1
23. Electric fan	No	0
	Yes	1
24. Sewing machine	No	0
	Yes	1
25. Washing machine	No	0
	Yes	1
26. Refrigerator	No	0
	Yes	1
27. Gas cooker	No	0
	Yes	1
28. Electric rice cooker	No	0
	Yes	1
29. Car	No	0
	Yes	1
30. Van	No	0
	Yes	1
31. Bicycle	No	0
	Yes	1
32. Motorbike	No	0
	Yes	1
33. Other vehicles (mini lorry, mini bus).	No	0
	Yes	1

If you do not mind, would you please tell us how much money comes in to this hsehold per month?

34. Wages	RM	
35. Business profit	RM	
36. Other income (specify).....	RM	
37. TOTAL (leave blank)	RM	

38. If you would imagine what your income is likely to be next year, do you expect it to be higher or lower than now taking into account the cost of living?	Much higher *(more than 20% higher)*	1
	A little higher *(up to 20% higher)*	2
	About the same *(no higher, no lower)*	3
	A little lower *(up to 20% lower)*	4
	Much lower *(more than 20% lower)*	5

How much your household spend monthly on the followings ?

39. Food RM

40. Clothes RM

41. Social activities *(kenduri)* RM

42. Annual celebrations RM

43. Others (specify)..... RM

44. Electricity RM

45. Water RM

46. Telephone RM

47. Housing loan/ monthly rental RM

48. Savings RM

49. TOTAL EXPENDITURE (leave blank) RM

50. How many male adults in your hsehold? *(16 years and above)*

51. How many female adults in your hsehold? *(ditto)*

52. TOTAL ADULTS (leave blank) (number)

53. Male children in your household? *(under 16)*

54. Female children in your household? *(ditto)*

55. TOTAL CHILDREN (leave blank) (number)

56. Total number of people in household (blank) (number)

57. Age of eldest child? (number in years)

58. Age of youngest child? (number in years)

59. How many people are there likely to be in your household in 3 years time?

60. How many people (not part of your hsehold) come & stay as yr guests per year?

61. How many rooms does your household occupy (excluding bathroom, toilet & store)?

kitchen
dining
living
bedroom

62. What was the most important factor that motivated you to want more rooms or better facilities?

More people joining the household	1
Children getting older	2
Wanted to rent out rooms	3
Wanted to start business	4
Wanted to have extra space	5

63. **Why did you decide to transform this house rather than moving to another?**

Did not consider a move	1
Like this area, prefer to stay in it	2
None available at the affordable price	3
Could not find a suitable alternative	4
Others (specify).....	5

64. **Have you encountered any difficulties in completing your transformation works?**
(listen to problem and fit in to categories)

Finance	1
Materials	2
Labour	3
Services (water, electricity supply, etc)	4
Others (specify).....	5

65. **Do you agree with the present allocation of low cost houses to buyers?**

No	0
Yes	1

66. **If no, please state reasons.**
(listen to reasons and fit in to categories)

Priority to those with political connection	1
Priority to those working with govt	2
Priority to relatives of (1) & (2)	3
Priority to friends of (1) & (2)	4
Others (specify).....	5

67. **Has anyone from the local authority has ever come and said anything threatening about the transformation of your house?**

No	0
Yes	1

68. **If yes, did they actually do anything?**

No action	0
Forced a change in what was built	1
Stopped the work going ahead	2
Demolished the work done	3

69. **If you were to leave the house, what would you do with it?**

Sell it to next occupant for its full value	1
Sell it to member of the family	2
Pass it on to another member of family	3
Will not leave house	4
Rent it out	5

70. **How much do you think your property is worth; i.e., if you were to sell it , how much would a buyer pay for it?**

RM ____

71. **Is this value more or less than what other houses in this area would sell for?**

Less	
Same	
More	

72. **How much would this property cost to rebuild?**

RM ____

73. **If you had to rent the same number of rooms as you live in here, what is the maximum amount would you be willing to pay in rent per month?**

RM ____

PHYSICAL CONDITIONS SCHEDULE

(Please examine the house and fill in the details as follows).

ORIGINAL HOUSE

	MATERIALS			CONDITIONS		
Walls	Cement block	**80**	1	No cracks	**81**	1
	Plastered brickwork		2	Minor cracks		2
	Others (specify).....		3	Major cracks		3
Roof	Corrugated zinc sheets	**82**	1	No evident leaks	**83**	1
	Asbestos		2	Leaks evident		2
	Tiles		3	Incomplete		3
Floor	Cement render	**84**	1	No cracks	**85**	1
	Tiles		2	Minor cracks		2
	Others (specify).....		3	Major cracks		3
Ceiling	Asbestos	**86**	1	No evident leaks	**87**	1
	Plywood		2	Leaks evident		2
	Others (specify).....		3	Incomplete		3
Windows	Adjustable glass louvres	**88**	1			
	Framed glass		2			
Doors	Plywood	**89**	1			
	Timber panelled		2			
	Others (specify).....		3			

TRANSFORMED HOUSE

	MATERIALS			CONDITIONS		
Walls	Cement block	**90**	1	No cracks	**91**	1
	Plastered brickwork		2	Minor cracks		2
	Others (specify).....		3	Major cracks		3
Roof	Corrugated zinc sheets	**92**	1	No evident leaks	**93**	1
	Asbestos		2	Leaks evident		2
	Tiles		3	Incomplete		3
Floor	Cement render	**94**	1	No cracks	**95**	1
	Tiles		2	Minor cracks		2
	Others (specify).....		3	Major cracks		3
Ceiling	Asbestos	**96**	1	No evident leaks	**97**	1
	Plywood		2	Leaks evident		2
	Others (specify).....		3	Incomplete		3
Windows	Adjustable glass louvers	**98**	1			
	Framed glass		2			
Doors	Plywood	**99**	1			
	Timber panelled		2			
	Others (specify).....		3			

Information on the transformations (for transformer)

I would like to ask you about the changes you have made to the house. If the changes were made at different times, it would help if we could split them into different parts. If the changes was carried out only once, then we will keep the parts together.

	Date (of payment for the work)		**Cost** (at the time of payment)		**Builders** (self, hired tradesmen, single contractor)		**Finance** (Bank loan, savings, family's help)		**Permission** (asked?)		**Permission** (granted?)
101		102		103		104		105		106	
201		202		203		204		205		206	
301		302		303		304		305		306	

Do you intend to make any changes to the house in the next three years?
Please could you give the following information.

	Likely Date (of payment for the work)		**Estimated Cost** (at the time of payment)		**Intended Builders** (self, hired tradesmen, single contractor)		**Intended Finance** (Bank loan, savings, family's help)		**Permission** (Intend to apply?)
401		402		403		104		105	
501		502		503		204		205	
601		602		603		304		305	

Information on the intended transformations (for non-transformer)

I would like to ask you about the changes you may intend to make to the house in the next three years.
Please could you give the following information.

	Likely Date (of payment for the work)		**Estimated Cost** (at the time of payment)		**Intended Builders** (self, hired tradesmen, single contractor)		**Intended Finance** (Bank loan, savings, family's help)		**Permission** (asked?) (yes/ no)
101		102		103		104		105	
201		202		203		204		205	
301		302		303		304		305	

CONTINGENT VALUATION BIDDING GAME (for non-transformer)

(Please note that all values inserted at present are notional amounts to shoe how the game works. Before the survey is carried out, a costing of a transformed house will be done by the Quantity Surveyor to asses the reasonable levels for the bidding process. The value in A should represent an average cost of a single house complete with veranda or porch, value in B should be 50% of A, while C is 150% of A).

(Show photograph of a typical local house that has been transformed with a high quality extension).

1. Here is a photograph of a house in this housing estate which has been transformed by the owner. The area in the kitchen and the front living room had been extended. The walls are of plastered brickwork and concrete tiles are used for the roofing materials.

If you are certain that the local authority would allow you to carry out the transformation, and that you are allowed to sell if you decide to leave the house:

A. Would you be willing to spend RM10,000 to make a similar transformation to your house?

Yes	210	1	Go to C
No		2	Go to B
Do not know		3	Go to B

B. Would you be willing to spend RM5,000 to make a lesser transformation to your house?

Yes	211	1	Go to D
No		2	Go to D
Do not know		3	Go to D

C. Would you be willing to spend RM15,000 to make an extensive transformation to your house?

Yes	212	1	Go to D
No		2	Go to D
Do not know		3	Go to D

D. If the authority allow you to carry out the transformation, and that you are allowed to sell if you decide to leave the house, what is the maximum amount of money that you would be willing to spend on the transformation work?

213 RM

E. What would you build? 214 Number of rooms:

F. What would the room be used for?
(fit answer in to ANY of the following and specify all relevant numbers)

More rooms for current household	215	
Room for relatives	216	
Room for renting out	217	
Room for storage	218	
Others (specify)	219	

LAMPIRAN III

SOALAN UTAMA

MUKA SURAT HADAPAN

SOALAN KAJILIDIK MENGENAI PENGUBAHSUAIAN

1. Identifikasi Rumah

Ara	1
Sri	2
Yam	3

2. Lokasi Lot Rumah

Lot Tepi	1
Lot Tengah	2

3. Alamat

4. Identifikasi Isirumah

Cina	1
India	2
Melayu	3

5. Jantina Ketua Isirumah

Lelaki	1
Perempuan	2

6. Adakah anda pemilik rumah ini?

Pemilik	1
Wakil pemilik/ penjaga	2
Harta Pesaka	3
Penyewa	4

7. Pernahkah anda mengubahsuai rumah ini?

Tidak	0
Ya	1

(Sekiranya rumah berkenaan telah diubahsuai atau tidak diubahsuai, sila guna soalan yang berkaitan).

Identifikasi Penemubual:	
Tarikh:	/ /95

SOALAN BAGI PEMILIK YANG MENGUBAHSUAI RUMAH YANG DIDIAMI

(Sila temubual ketua isirumah yang memiliki rumah berkenaan. Juga temubual sipenyewa sekira ada).

8. Siapakah diantara isirumah anda yang mendorong anda untuk mengubahsuai rumah ini?

Diri sendiri	1
Isteri	2
Lain-lain	3

9. Bagaimana anda memiliki rumah ini?

Berhutang sebagai kakitangan kerajaan	1
Berhutang bukan sebagai kakitangan kerajaan	2
Beli dari orang perseorangan	3
Warisan harta	4
Sewa dari orang perseorangan	5

10. Adakah anda memiliki rumah selain dari ini?

Tiada	0
Ada	1

11. Jika ada, dimana letaknya rumah berkenaan?

Di kampung	1
Di bandar lain	2
Di kawasan yg sama dengan rumah ini	3

12. Berapakah umur anda? (tahun) ____

13. Berapa lamakah anda tinggal dirumah ini? (tahun) ____

14. Berapa lama anda memegang jawatan sekarang atau berapa lama anda telah memulakan? perniagaan sendiri? (tahun) ____

15. Apakah pencapaian pendidikan tertinggi anda?

Tidak bersekolah *(0 thn)*	1
Sekolah rendah *(6 thn)*	2
Sekolah agama *(6 thn)*	3
SRP *(9 thn))*	4
SPM *(11 thn)*	5
STP *(13 thn)*	6
Kolej/ Universiti*(<15 thn)*	7

16. Adakah anda bercadang menetap di bandar?
(Sila dengar jawapan dgn teliti & tanda nombor yang sesuai)

Akan balik kg secepat mungkin	1
Sedang berusaha utk balik kg	2
Akan menetap di bandar & masih berhubung dgn saudara di kg	3
Akan balik kg bila pencen	4
Memang lahir & dibesarkan di bandar	5

Adakah anda memiliki barang-barang pengguna berikut?

17. Telefon

Tidak	0
Ya	1

18. Televisyen

Tidak	0
Ya	1

19. Radio

Tidak	0
Ya	1

20. Stereo

Tidak	0
Ya	1

21. Video	Tidak	0	
	Ya	1	
22. Alat pendingin udara	Tidak	0	
	Ya	1	
23. Kipas angin elektrik	Tidak	0	
	Ya	1	
24. Mesin jahit	Tidak	0	
	Ya	1	
25. Mesin basuh kain	Tidak	0	
	Ya	1	
26. Peti sejuk/ ais	Tidak	0	
	Ya	1	
27. Dapur gas	Tidak	0	
	Ya	1	
28. Periuk nasi elektrik	Tidak	0	
	Ya	1	
29. Kereta	Tidak	0	
	Ya	1	
30. Van	Tidak	0	
	Ya	1	
31. Basikal	Tidak	0	
	Ya	1	
32. Motorsikal	Tidak	0	
	Ya	1	
33. Kenderaan lain (lori mini, bas mini)	Tidak	0	
	Ya	1	

Berapakah pendapatan bersih sebulan termasuk dari sumber-sumber lain?

34. Gaji	RM	
35. Keuntungan perniagaan	RM	
36. Lain-lain (nyatakan).....	RM	
37. JUMLAH (kosongkan)	RM	

38. Sila bayangkan bagaimana kedudukan pendapatan anda pd tahun depan? Mengambil pertimbangan 'kos' sara hidup, adakah pendapatan anda akan bertambah atau kurang dari apa yg diterima sekarang?	Lebih tinggi *(lebih dari 20%)*	1
	Lebih sedikit *(tambah sebanyak 20%)*	2
	Sama *(tak kurang, tak lebih)*	3
	Kurang sikit *(kurang sebanyak 20%)*	4
	Terlalu kurang *(lebih drpd 20%)*	5

Berapakah perbelanjaan keluarga anda bagi perkara berikut?

39. Makanan RM

40. Pakaian RM

41. Kenduri 9kesyukuran, kematian, dll) RM

42. Sambutan perayaan tahunan RM

43. Lain-lain (nyatakan)..... RM

44. Bil elektrik RM

45. Bil air RM

46. Bil telefon RM

47. Pinjaman perumahan/ sewa bulanan RM

48. Simpanan RM

49. JUMLAH (kosongkan) RM

50. Berapa ramai orang dewasa lelaki dlm isirumah? *(16 thn keatas)*

51. Berapa ramai orang dewasa perempuan dlm isirumah? *(sama)*

52. JUMLAH ORANG DEWASA (kosongkan) (bilangan)

53. Berapa ramai kanak-kanak lelaki? *(bawah 16 thn)*

54. Berapa ramai kanak-kanak perempuan? *(sama)*

55. JUMLAH KANAK-KANAK (kosongkan) (bilangan)

56. Jumlah ahli isirumah (kosongkan) (bilangan)

57. Umur anak sulung? (tahun)

58. Umur anak bongsu? (tahun)

59. Sila bayangkan dlm masa 3 tahun, berapakah bilangan ahli isirumah anda?

60. Berapa tetamu bukan isi rumah anda yg tinggal bersama anda dlm setahun

61. Berapakah bilangan bilik yg diguna oleh isirumah anda (ini tidak termasuk bilik air, tandas & setor)

dapur
ruang makan
ruang rehat
bilik tidur

62. Apakah faktor utama yg mendorong anda untuk menambah bilangan bilik atau memperbaiki keadaan rumah anda?

Bil isirumah telah bertambah	1
Anak meningkat dewasa	2
Bertujuan menyewa bilik	3
Bertujuan memulakan perniagaan	4
Menambah ruang	5

63. **Mengapa anda membuat keputusan mengubahsuai rumah ini dan tidak berpindah sahaja?**

Tidak terlintas utk berpindah	1
Keadaan sekitar adalah sesuai	2
Tiada rumah lain mampu utk dibeli	3
Tiada ada alternatif yg sesuai	4
Lain-lain (nyatakan).....	5

64. **Adakah anda menghadapi masaalah dlm menyiapkan kerja-kerja ubahsuai rumah anda?**
(sila dengar masaalah dan tanda mengikut kategori)

Sumber kewangan	1
Bahan bangunan	2
Bilangan buruh	3
Kemudahan (bekalan air, elektrik, dll)	4
Lain-lain (nyatakan).....	5

65. **Adakah anda setuju dgn sistem mengenai pemilihan pembeli rumah kos rendah sekarang?**

Tidak	0
Ya	1

66. **Jika tidak, sila beri sebab-sebab.**
(sila dengar dgn teliti dan tanda mengikut kategori).

Hubungan politik	1
Kakitangan kerajaan	2
Saudara mara (1) & (2)	3
Kenalan (1) & (2)	4
Lain-lain (nyatakan).....	5

67. **Pernahkah wakil Pihakberkuasa Tempatan beri amaran mengenai kerja ubahsuai rumah anda?**

Tidak	0
Ya	1

68. **Sekira ya, apakah tindakan yg diambil? oleh PBT?**

Tiada tindakan	0
Paksa anda tukar apa yg telah dibina	1
Arahan hentikan kerja binaan	2
Roboh kerja yg telah siap dibina	3

69. **Sekiranya keadaan paksa anda tinggalkan rumah ini, apakah yg anda akan lakukan?**

Jual pada sesiapa dgn harga sepenuh	1
Jual pada ahli keluarga	2
Wasiatkan kpd ahli keluarga	3
Tidak akan tinggalkan rumah ini	4
Sewa	5

70. **Berapakah anggaran nilai rumah ini, sekiranya anda cadang utk menjualnya dan berapakah bayaran yg akan dibuat oleh sipembeli?** RM ____

71. **Adakah nilai ini lebih tinggi atau kurang dari harga rumah yg patut dijual dikawasan ini?**

kurang	
sama	
lebih	

72. **Berapakah kos membina semula rumah ini?** RM ____

73. **Sekiranya anda terpaksa menyewa rumah spt ini, berapakah sewa paling tinggi yg anda sanggup bayar sebulan?** RM ____

JADUAL KEADAAN FIZIKAL

(Sila buat pemeriksaan mengenai rumah dan catat butiran-butiran berikut).

RUMAH ASAL

	BAHAN BANGUNAN			KEADAAN		
Dinding	Blok simen	**80**	1	Tiada retak	**81**	1
	Batu bata berlepar		2	Retak halus		2
	Lain-lain (nyatakan).....		3	Retak struktur		3
Bumbung	Zink	**82**	1	Tiada bocor	**83**	1
	Asbestos		2	Bocor		2
	Genting		3	Tiada siap		3
Lantai	Simen	**84**	1	Tiada retak	**85**	1
	Genting		2	Retak halus		2
	Lain-lain (nyatakan).....		3	Retak struktur		3
Siling	Asbestos	**86**	1	Tiada bocor	**87**	1
	Papan lapis		2	Bocor		2
	Lain-lain (nyatakan).....		3	Tiada siap		3
Tingkap	Kaca boleh laras	**88**	1			
	Kaca berbingkai		2			
Pintu	Papan lapis	**89**	1			
	Papan		2			
	Lain-lain (nyatakan).....		3			

RUMAH DIUBAHSUAI

	BAHAN BANGUNAN			KEADAAN		
Dinding	Blok simen	**90**	1	Tiada retak	**91**	1
	Batu bata berlepar		2	Retak halus		2
	Lain-lain (nyatakan).....		3	Retak struktur		3
Bumbung	Zink	**92**	1	Tiada bocor	**93**	1
	Asbestos		2	Bocor		2
	Genting		3	Tiada siap		3
Lantai	Simen	**94**	1	Tiada retak	**95**	1
	Genting		2	Retak halus		2
	Lain-lain (nyatakan).....		3	Retak struktur		3
Siling	Asbestos	**96**	1	Tiada bocor	**97**	1
	Papan lapis		2	Bocor		2
	Lain-lain (nyatakan).....		3	Tiada siap		3
Tingkap	Kaca boleh laras	**98**	1			
	Kaca berbingkai		2			
Pintu	Papan lapis	**99**	1			
	Papan		2			
	Lain-lain (nyatakan).....		3			

Maklumat mengenai kerja pengubahsuaian rumah yang dimiliki

Sekiranya anda telah mengubahsuai rumah ini beberapa kali, sila maklum kepada kami mengenai kerja pengubahsuaian mengikut pecahan kerja berkenaan dan tarikh siap dibina. Sekiranya anda hanya mengubahsuai sekali sahaja, maklumat yang diberi bolehlah disatukan.

	Tarikh Cadangan (semasa bayar kerja bina)		**Anggaran Kos** (semasa bayar kerja bina)		**Siapa akan bina?** (sendiri, upah, kontraktor)		**Sumber kewangan** (Pinjaman bank, simpanan, famili bantu)		**Kebenaran** (mohon)		**Kebenaran** (lulus)
101		102		103		104		105		106	
201		202		203		204		205		206	
301		302		303		304		305		306	

Adakah anda bercadang untuk mengubahsuai rumah ini dalam masa tiga tahun akan datang?
Sila beri maklumat terperinci.

	Tarikh Cadangan (semasa bayar kerja bina)		**Anggaran Kos** (semasa bayar kerja bina)		**Siapa akan bina?** (sendiri, upah, kontraktor)		**Sumber kewangan** (Pinjaman bank, simpanan, famili bantu)		**Kebenaran** (akan mohon)
401		402		403		104		105	
501		502		503		204		205	
601		602		603		304		305	

Maklumat mengenai kerja pengubahsuaian yang akan dilakukan

Adakah anda bercadang untuk mengubahsuai rumah ini dalam masa tiga tahun akan datang?
Sila beri maklumat terperinci.

	Tarikh Cadangan (semasa bayar kerja bina)		**Anggaran Kos** (semasa bayar kerja bina)		**Siapa akan bina?** (sendiri, upah, kontraktor)		**Sumber kewangan** (Pinjaman bank, simpanan, famili bantu)		**Kebenaran** (mohon) (ya/ tidak)
101		102		103		104		105	
201		202		203		204		205	
301		302		303		304		305	

PERMAINAN TAWARAN BAGI PENILAIAN DILUAR JANGKAAN

(Soalan berikut adalah bagi mereka yang tidak mengubahsuai rumah yang didiami).

(Sila maklum bahawa semua nilai yang diberi adalah bertujuan untuk mengambarkan bagaimana permainan ini boleh diguna. Sebelum kajilidik bermula, satu perkiraan mengenai kerja-kerja ubahsuai/ tambahan akan dibuat untuk menentukan nilai yang munasabah bagi panggilan tawaran.
Nilai A ialah harga purata bagi sebuah bilik di belakang, sebuah bilik atau ruang rehat dihadapan berserta serambi. Nilai bagi B adalah 50% daripada A, manakala nilai C adalah 150% daripada A).

(Sila tunjuk gambar sebuah rumah dimana kerja-kerja pengubahsuaian adalah berkualiti tinggi).

1. Ini adalah sekeping gambar dimana rumah berkenaan telah diubahsuai oleh sipemilik. Keluasan dapur dan bahagian hadapan rumah tersebut telah ditambah. Dinding rumah ini dibina dengan batu bata merah dan dilepa, manakala bumbungnya adalah dari bahan bermutu tinggi.

Sekiranya Pihakberkuasa Tempatan membenarkan anda membina kerja pengubahsuaian yang sama dan anda dibenarkan menjual rumah ini:-

A. Adakah anda sanggup belanja sebanyak RM10,000 untuk kerja ubahsuai yang sama keatas rumah anda?

Ya	210	1	Pergi ke C
Tidak		2	Pergi ke B
Tidak tahu		3	Pergi ke B

B. Adakah anda sanggup belanja sebanyak RM5,000 untuk ubahsuai sebahagian kecil rumah anda?

Ya	211	1	Pergi ke D
Tidak		2	Pergi ke D
Tidak tahu		3	Pergi ke D

C. Adakah anda sanggup belanja sebanyak RM15,000 untuk ubahsuai sebahagian besar rumah anda?

Ya	212	1	Pergi ke D
Tidak		2	Pergi ke D
Tidak tahu		3	Pergi ke D

D. Sila beri jawapan dengan teliti, sekiranya Pihakberkuasa Tempatan bersetuju membenarkan anda mengubahsuai rumah anda seperti rumah diatas dan membenarkan anda menjualnya kemudian, apakah perbelanjaan maksima yang anda sanggup belanja bagi kerja-kerja pengubahsuaian?

213 RM

E. Apakah yg anda akan tambah? 214 Bil bilik:

F. Apakah kegunaan sebenar bilik yang ditambah?
(sila padankan jawapan yang diberi dengan alasan dibawah & tanda)

Menambah bilangan bilik untuk isirumah sediada	215	
Bilik untuk saudara mara	216	
Bilik untuk disewa	217	
Bilik untuk setor barang	218	
Lain-lain (nyatakan)	219	

APPENDIX III

LIST OF VARIABLES FOR

SOCIO-ECONOMIC AND HOUSING CHARACTERISTICS ANALYSIS

VARIABLE NAME	VARIABLE LABEL	Value	VALUE LABEL
1. HID	House identifier according to different housing schemes		(Number from 00 to replace existing house number)
2. HLOC	House location	1 2	End Lot Intermediate Lot
3. ADDRESS	House address		
4. PLOT	Plot area		(m^2)
5. PLORATIO	Plot ratio (i.e. Area/ Tothse)		
6. HHID	Household identifier	1 2 3	Chinese Indian Malay
7. SEXOHD	Sex of head of household	1 2	Male Female
8. TENURE	Ownership	1 2 3 4	Owner Owner's rep/ caretaker Family ownership (rent free) Renter
9. TRANS	Transformation	0 1	No Yes
10. TRANS1	Transformers	0 1 2	Non-transformer Established transformer (up till end 1993) Recent transformer (begin 1994)
11. MOTIVA	Motivation	1 2 3	Self Wife Others
12. ACQUIRE	Acquisition	1 2 3 4 5	Bought as a govt servant Bought as a non-govt servant Bought from individual Inherited Rent from individual
13. HSELSE	Owning house elsewhere	0 1	No Yes
14. ELSELOC	Location of house elsewhere	1 2 3	In the village In another town (not hometown) In same area as this house
15 . AGEOHD	Age of head hsehold		(Number in years)
16. AGEMOVE	Age of head hsehold at moving in i.e.(Ageohd-Hsestay)		(Number in years)
17. AGETRANS	Age of hh at 1st transformation i.e.(Ageohd-Date)		(Number in years)
18. HSESTAY	Length of stay in house		(Number in years)
19. EMPSTAY	Length of employment		(Number in years)
20. EDUYRS	Education level		(Number of years completed)

21. STAYCITY	Intention to stay in city	0 1	No Yes
22. STAYCITY1	Intention to stay in city	1 2 3 4 5	Will return to village a.s.a.p. Working to return to village Will stay but keep in touch with village Will return to village on retirement Will always be in town/ city
23. TEL (rent RM18/month)	Owns telephone	0 1	No Yes
24. TV (cost RM1200)	Owns television	0 1	No Yes
25. RADIO (cost RM100)	Owns radio	0 1	No Yes
26. STEREO (cost RM4000)	Owns stereo	0 1	No Yes
27. VIDEO (cost RM1800)	Owns video	0 1	No Yes
28. AIRCON (cost RM1600)	Owns air-conditioner	0 1	No Yes
29. ELECFAN (cost RM50)	Owns electric fan	0 1	No Yes
30. SEWMAC (cost RM280)	Owns sewing machine	0 1	No Yes
31. WASMAC (cost RM800)	Owns washing machine	0 1	No Yes
32. FRIDGE (cost RM1400)	Owns refrigerator	0 1	No Yes
33. GASCOOK (cost RM120)	Owns gas cooker	0 1	No Yes
34. ELERICE (cost RM80)	Owns electric rice cooker	0 1	No Yes
35. CAR (cost RM30,000)	Owns car	0 1	No Yes
36. VAN (cost RM60,000)	Owns van	0 1	No Yes
37. BIKE (cost RM200)	Owns bicycle	0 1	No Yes
38. MOBIKE (cost RM3000)	Owns motor bicycle	0 1	No Yes
39. OTHVEHIC (cost RM90,000)	Owns other vehicles (mini lorry, mini bus)	0 1	No Yes
40. RWI	Relative Wealth Index		
41. WAGE	Wages	RM	(Amount per year in local currency)
42. PROFIT	Business profits	RM	-ditto-
43. OTINCO	Other income	RM	-ditto-
44. TOINCO	Total income	RM	-ditto-
45. INCDIFF	(Total income - Hsg Estate Mean)	RM	-ditto-

46. NEXTYR	Next year 's cost of living	1 2 3 4 5	Much higher A little higher About the same A little lower Much lower
47. FOODEX	Expenditure on food	RM	(Amount per year in local currency)
48. TRANEX	Exp. on transport	RM	-ditto-
49. CLOTEX	Exp. on clothes	RM	-ditto-
50. SOCEX	Exp. on social activities	RM	-ditto-
51. ANUEX	Exp. on annual celebrations	RM	-ditto-
52. OTHEX	Other expenditures	RM	-ditto-
53. ELECB	Electricity bill	RM	-ditto-
54. WATB	Water bill	RM	-ditto-
55. PHONB	Phone bill	RM	-ditto-
56. HLOAN	Housing loan/ rent	RM	-ditto-
57. SAVING	Savings	RM	(Amount per year in local currency)
58. TOTEX	Total expenditure	RM	-ditto-
59. MADULT	Male adults in hsehold		(Number)
60. FADULT	Female adults in hsehold		(Number)
61. ADULTS	Total number of adults in hsehold		(Number)
62. MCHILD	Male children in hsehold		(Number)
63. FCHILD	Female children in hsehold		(Number)
64. CHILDREN	Total number of children in hsehold		(Number)
65. DEPEND	Dependency Ratio (Total members in hsehold per adult)		(Ratio)
66. DEPEND1	Dependency Ratio (Children/ Total number of adults)		
67. ELDEST	Age of eldest child in hsehold		(Number in years)
68. YOUNG	Age of y'gest child in hsehold		(Number in years)
69. FUTHH	Estimated size of hsehold in 3 years time		(Number)
70. RMSOCC	Number of rooms occupied by hsehold		(Number)
71. GUESTS	No. of guests each year		(Number)
72. TOTHSE	Total number in house		(Number)
73. WHYMORE	Most important factor in transformation	1 2 3 4 5	More people joining hsehold Children getting older Wanted to rent out rooms Wanted to start business Wanted to have extra space
74. WHYEXT	Why extend rather than move?	1 2 3 4 5	Did not consider a move Like this area, prefer to stay No affordable price available No other alternatives Others

75. PROBLEM	Problem encountered during transformation	1 2 3 4 5	Financial Material Labour Services Others
76. AGREE	Agree with allocation system	0 1	No Yes
77. REASON	Reason for disagreement	1 2 3 4 5	Priority to those with political connections Priority to those working with govt Priority to relatives of (1) & (2) Priority to friends of (1) & (2) Others
78. VALUE	Value of property	RM	(In local currency)
79. VALUERM	Value/ Habitable rooms	RM	-ditto-
80. VALUEREA	Value/ Habitable area	RM	-ditto-
81. AVERAGE	Value more or less than average	1 2 3	Less Same as average More
82. REBULD	Cost to rebuild	RM	(In local currency)
83. REBULDRM	Cost to rebuild/ habitable room	RM	-ditto-
84. REBULDRE	Cost to rebuild/ habitable area	RM	-ditto-
85. MAXRENT	Maximum monthly rent for same number of rooms	RM	-ditto-
86. MXRENTRM	Maximum rent/ habitable room	RM	-ditto-
87. MXRENTRE	Maximum rent/ habitable area	RM	-ditto-
88. VMULTIPL	(Valuerm/ mxrentrm)/ 12 months		(number in years)
89. LEAVE	Intention on leaving house	1 2 3 4 5	Sell to next occupant at full value Sell to family member Pass to another family member Will not leave house Rent it out
90. SELL	Intention to sell house	0 1	No Yes
91. FAMILY	Intention to pass house to family	0 1	No Yes

INFORMATION ON TRANSFORMATION

VARIABLE NAME	VARIABLE LABEL	Value	VALUE LABEL
92. DATE	1995-Date of 1st transformation i.e. (1995-Date10)		(Number in years)
93. DATE10	Date of first transformation	0	No transformation Year when t'n took place
94. DATE10.2	Date to determine established & recent transformers	0 1 2	No transformation End 1992 (established transformers) Begin 1993 (recent transformers)
95. COST10	Cost of first transformation	RM	(Amount in local currency)
96. COST 1095	Adjusted 1995 value for Cost10	RM	-ditto-

97. WORKER10	Worker for first transformation	1 2 3	Self Hired tradesmen Single contractor
98. FIN10	Finance for first transformation	1 2 3	Bank loan Savings Family's help
99. PERASK10	Permission sought from Local Authority	0 1 4	Non-transformer Yes No
100. PERGRA10	Permission granted from Local Authority	0 1 4	Non-transformer Yes No
101. DATE20	Date of second transformation		(Year)
102. COST20	Cost of second transformation	RM	(Amount in local currency)
103. COST 2095	Adjusted 1995 value for Cost20	RM	-ditto-
104. WORKER20	Worker for second transformation	1 2 3	Self Hired tradesmen Single contractor
105. FIN20	Finance for second transformation	1 2 3	Bank loan Savings Family's help
106. PERASK20	Permission sought from Local Authority	0 1	No Yes
107. PERGRA20	Permission granted from Local Authority	0 1	No Yes
108. TRANCOST	Cost of 1st trans + Cost of 2nd trans i.e.(Cost1095+Cost2095)	RM	(Amount in local currency)
109. BUYCOST	Actual buying cost @ 1995 value	RM	-ditto-
110. TOTCOST	Actual total cost spent @ 1995 value	RM	-ditto-

INTENTION TO EXTEND IN NEXT 3 YEARS

VARIABLE NAME	VARIABLE LABEL	Value	VALUE LABEL
111. DATE30	Likely date for 30		(Year)
112. COST30	Estimated cost for 30	RM	(Amount in local currency)
113. WORKER30	Worker for 30	1 2 3	Self Hired tradesmen Single contractor
114. FIN30	Finance for 30	1 2 3	Bank loan Savings Family's help
115 PERASK30	Permission for 30	0 1	No Yes

ORIGINAL BUILDING CONDITION

VARIABLE NAME	VARIABLE LABEL	Value	VALUE LABEL
OWMAT	Original wall material	1	Cement block
		2	Plastered brickwork
		3	Others (specify)
OWCON	Original wall condition	1	No cracks
		2	Minor cracks
		3	Major cracks
ORMAT	Original roof material	1	Corrugated zinc sheets
		2	Asbestos
		3	Tiles
ORCON	Original roof condition	1	No evident leaks
		2	Evident leaks
		3	Incomplete
OFMAT	Original floor material	1	Cement render
		2	Tiles
		3	Others (specify)
OFCON	Original floor condition	1	No cracks
		2	Minor cracks
		3	Major cracks
OCEMAT	Original ceiling material	0	No ceiling
		1	Asbestos
		2	Plywood
		3	Others (specify)
OCECON	Original ceiling condition	0	No ceiling
		1	No evident leaks
		2	Evident leaks
		3	Incomplete
OWIMAT	Original window material	1	Adjustable glass louvres
		2	Framed glass
ODMAT	Original door material	1	Plywood
		2	Timber panelled
		3	Others (specify)

TRANSFORMED BUILDING CONDITION

EXWMAT	Extension wall: material	1	Cement block
		2	Plastered brickwork
		3	Others (specify)
EXWCON	Extension wall: condition	1	No cracks
		2	Minor cracks
		3	Major cracks
EXRMAT	Extension roof: material	1	Corrugated zinc sheets
		2	Asbestos
		3	Tiles
EXRCON	Extension roof: condition	1	No evident leaks
		2	Evident leaks
		3	Incomplete
EXFLMAT	Extension floor: material	1	Cement render
		2	Tiles
		3	Others (specify)
EXFLCON	Extension floor: condition	1	No cracks
		2	Minor cracks
		3	Major cracks

EXCEMAT	Extension ceiling: material	0 1 2 3	No ceiling Asbestos Plywood Others (specify)
EXCECON	Extension ceiling: condition	0 1 2 3	No ceiling No evident leaks Leaks evident Incomplete
EXWIMAT	Extension window: material	1 2	Adjustable glass louvres Framed glass
EXDMAT	Extension door: material	1 2 3	Plywood Timber panelled Others (specify)

HOUSE PHYSICAL SURVEY

VARIABLE NAME	VARIABLE LABEL	Value	VALUE LABEL
KITCH	Total number of kitchens		
BATH.WC	Total number of bathrms & toilets		
LIV/DIN	Total number of living/ dining rms		
BEDRMS	Total number of bedrms		
OTHERS	Total number of general purpose rms		
COMMERCE	Number of rms for commercial use		
HABITRM	Total rms for kitch, liv/din, bedrms		
OCUPANCY	Occupancy rate (Tothse/ habitrm)		
ARBATH/T	Total area for bathrm & toilets	(m^2)	
ARKITCH	Total area for kitchen	-ditto-	
ARLIV/DIN	Total area for living & dining	-ditto-	
ARBED	Total area for bedrms	-ditto-	
AROTH	Total area for general purpose rooms	-ditto-	
ARCOMM	Total area for commercial activity	-ditto-	
ORIHABIT	Original habitable area i.e. (Orihse - 3sq metre)	-ditto-	
HABITREA	Total habitable area i.e.(Totarea - Arbath/T)	-ditto-	
TOTAREA	Total area of house	-ditto-	
ORIHSE	Total original area of house	-ditto-	
TAG	Total area gained (Totarea-Orihse)	-ditto-	
FSI	Floor Space Index (Orihse/ Plotarea)		
OSPINDX	Original Floor Space Index (same as FSI)		
PSPINDX	Current Floor Space Index i.e.(Totarea/ Plotarea)		
FSIPER2 (% change in floor space index)	{(PSPINDX-OSPINDX) /OSPINDX} 100		

CONTINGENT VALUATION GAME (non-transformers only)

VARIABLE NAME	VARIABLE LABEL	Value	VALUE LABEL
WTOMID	Willing to spend middling	0	Don't know
		1	Yes
		2	No
		3	Not applicable
WTOLIT	Willing to spend little	0	No
		1	Yes
		2	Don't know
WTOBIG	Willing to spend big	0	No
		1	Yes
		2	Don't know
WTPTOT	Total willing to pay		(Amount in loacal currency)
WTPRMS	Rooms to build		(Number)
EXRMHH	More room for current household	0	No
		1	Yes
		3	Not applicable
EXRMREL	Room for relatives	0	No
		1	Yes
		3	Not applicable
MISCH	More space for existing rooms i.e.(kitchen, living)	0	No
		1	Yes
		3	Not applicable

RATIOS

VARIABLE NAME	VARIABLE LABEL	Value	VALUE LABEL
HVTOINCO	Hse value/ Total income	Ratio	
RETOINCO	Annual rental/ Total income	Ratio	
TRANINCO	Total cost of transformation/ Total income	Ratio	
TCOSINCO	Total cost spent/ Total income	Ratio	
SATOINCO	Annual savings/ Total income	Ratio	
EXTOINCO	Total expenditure/ Total income	Ratio	
FOTOINCO	Food expenditure/ Total income	Ratio	
CAPITA	Total income/ Total members of hsehold	RM	(Amount in local currency)

APPENDIX IV

MINIMUM REQUIREMENTS OF BUILDING DEVELOPMENT CONTROL FOR RESIDENTIAL BUILDINGS

ELEMENTS	REQUIREMENTS
VENTILATION	- Total area of windows to be not less than 10% of clear area of such room
AIR WELL i) Minimum size ii) Minimum width	 - $7m^2$ for building up to 2 storeys - $9m^2$ for building up to 4 storeys - 2.5m
ROOM SPACE i) Minimum areas of habitable room ii) Kitchen	 - First room to be not less than $11m^2$ - Second room to be not less than $9.3m^2$ - Other rooms to be not less than $6.5m^2$ - Not less than $4.5m^2$ - Not less than 1.5m wide
HEIGHT OF ROOMS	- Not less than 2.5m for living room & bedroom. - Not less than 2.25m for kitchen Not less than 2.0m for bathrooms, toilets, porches, garages, balconies and verandas.

Source: Uniform Building By-Laws 1984

APPENDIX V

LOCAL AUTHORITIES GUIDELINES ON EXTENSIONS

SKETCH PLAN 1A

FRONT EXTENSIONS FOR TERRACE HOUSES

*Front extension to **ground floor storey only** can be permitted up to a maximum distance of 6.0m measured on plan from the innermost front external wall of the existing building to the outermost edge of the proposed extension provided they comply with all the limitations and the necessary setbacks from the front boundary.*

LIMITATIONS

(a) All such extensions must not be enclosed but the use of open arches for decorative purposes only is permitted.

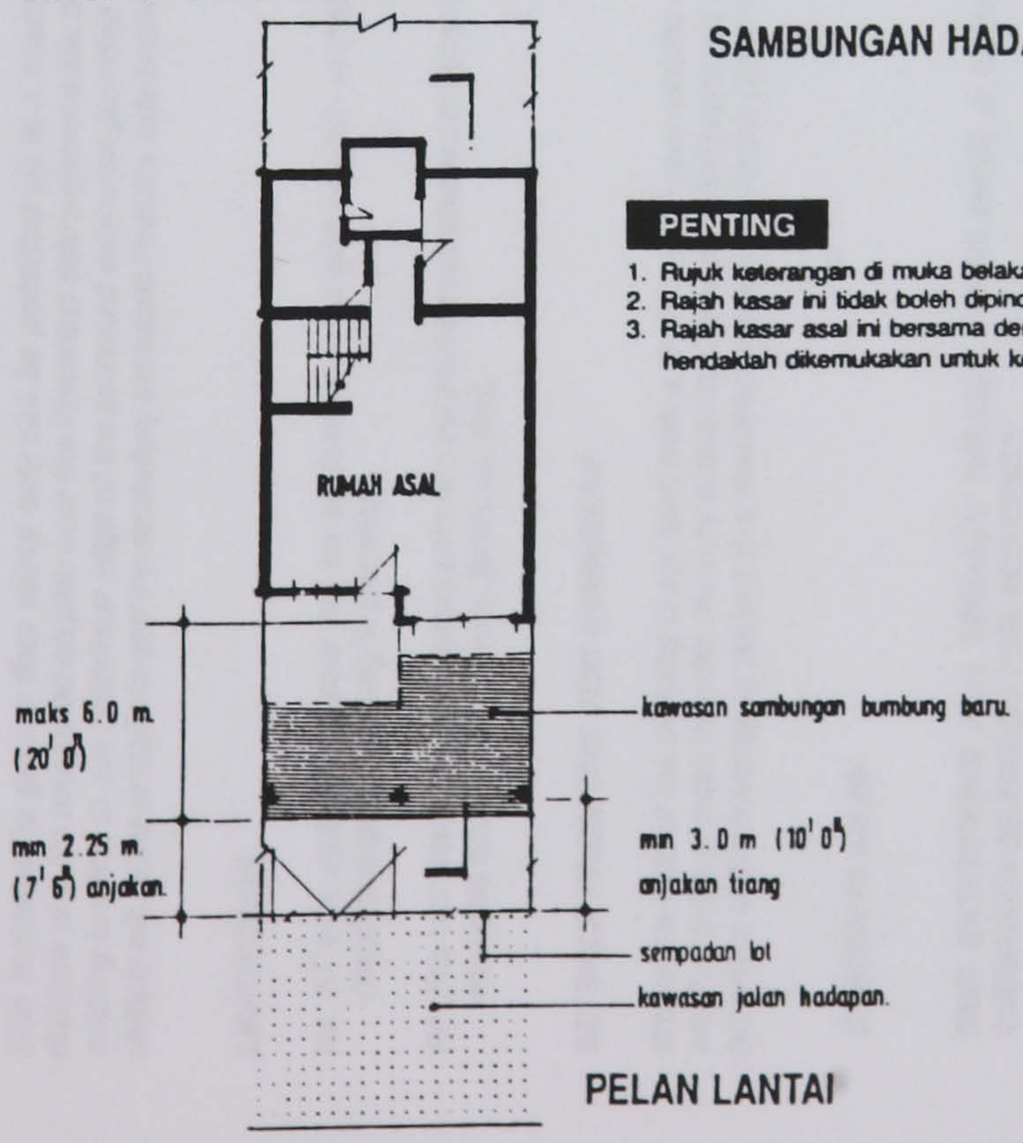
(b) The roof shall not be of reinforced concrete but shall be constructed of lighweight materials such as aluminium, asbestos, tiles.

(c) Minimum clearance from floor level to underside of ceiling to be not less than 2.0m (6' 6").

SETBACK FROM THE FRONT BOUNDARY

A minimum clearance of 2.25m (7' 6") to be provided from the eave of extension to the front boundary subject to the length of the porch extension.

RAJAH KASAR 1A

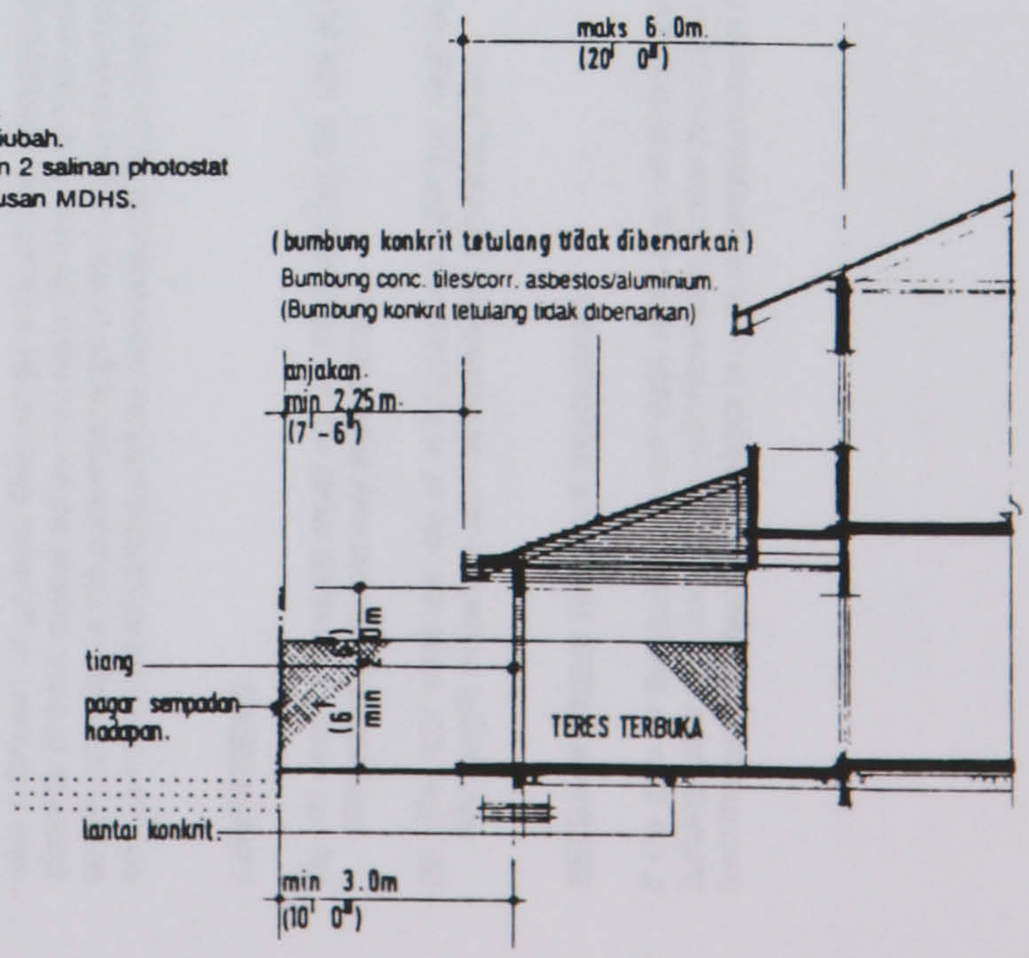


PELAN LANTAI

SAMBUNGAN HADAPAN–RUMAH TERES.

PENTING

1. Rujuk keterangan di muka belakang.
2. Rajah kasar ini tidak boleh dipinda/diubah.
3. Rajah kasar asal ini bersama dengan 2 salinan photostat hendaklah dikemukakan untuk kelulusan MDHS.



KERATAN

ALAMAT DAN NAMA PEMILIK	TANDATANGAN
NO JALAN	
UNTUK K/P:	
HAK CIPTA TERPELIHARA -	

NOTA: Semua permukaan dinding batu hendaklah di plaster dan dicat

SKETCH PLAN 2A

SIDE EXTENSIONS FOR TERRACE HOUSES WHICH HAVE A DRAIN RESERVE/SIDE LANE OF 3.0M (10' 0") OR 6.0M (20' 0")

Side extension to ground floor storey only can be permitted up to a maximum distance of 6.0m measured on plan from the innermost side external walls of the existing building to the outermost edge of the proposed extension provided they comply will all the limitations and the necessary set backs from the side boundary.

LIMITATIONS

(a) All such extensions must not be enclosed but the use of open arches for decorative purposes only is permitted.

(b) The roof shall not be reinforced concrete but shall be constructed of lightweight materials such as aluminium, asbestos, tiles.

SETBACK FROM THE SIDE BOUNDARY

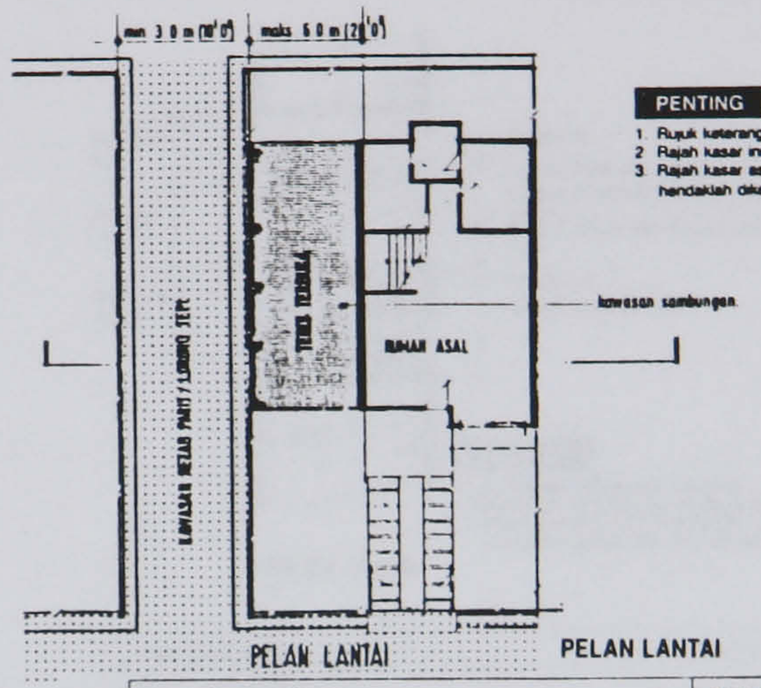
Where the side of the building is set back from a drain/service reserve/side lane which is 3.0m or more in width, the side extension can be permitted up to the side boundary of the building lot subject to a maximum projection of 6.0m (20' 0").

RAJAH KASAR 2A

SAMBUNGAN TEPI RUMAH TERES YANG MEMPUNYAI REZAB PARIT/LORONG TEPI 3.0 m (10' 0") ATAU 6.0 m (20' 0")

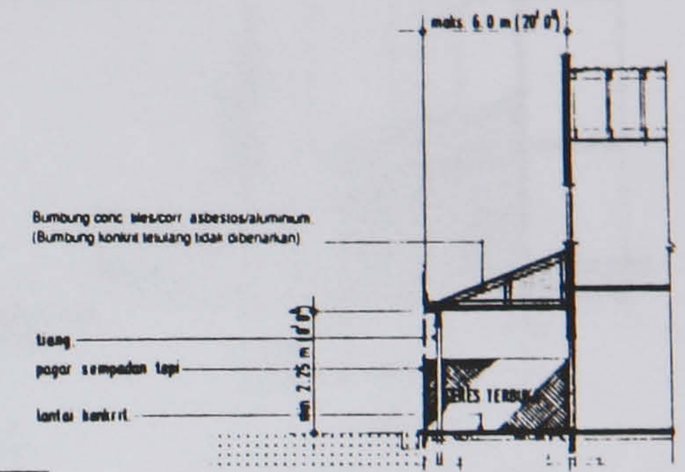
DILULUSKAN
Pelan yang telah diluluskan dalam Mesyuarat Jawatankuasa Pelan Bangunan Majlis Daerah Hulu Selangor bertarikh 17 Sept. 1993 Bil 07/93

b.p. Yang Dipertua
Majlis Daerah Hulu Selangor



PENTING

1. Rujuk keterangan di muka belakang.
2. Rajah kasar ini tidak boleh dipinda/diubah.
3. Rajah kasar asal ini bersama dengan 2 salinan photostat hendaklah dikemukakan untuk kelulusan MDHS.



PELAN LANTAI

KERATAN

ALAMAT DAN NAMA PEMILIK	TANDATANGAN
NO JALAN	
UNTUK KIP	
HAK CIPTA TERPELIHARA –	

SKETCH PLAN 2B

SIDE EXTENSIONS FOR TERRACE HOUSES WHICH HAVE A COMMON BOUNDARY BETWEEN TWO BUILDINGS

*side extension to **ground floor** storey only can be permitted up to a maximum distance of 6.0m measured on plan from the innermost side external walls of the existing building to the outermost edge of the proposed extension provided they comply will all the limitations and the necessary set backs from the side boundary.*

LIMITATIONS

(a) All such extensions must not be enclosed but the use of open arches for decorative purposes only is permitted.

(b) The roof shall not be of reinforced concrete but shall be constructed of lightweight materials such as aluminium, asbestos, tiles.

SETBACK FROM THE SIDE BOUNDARY

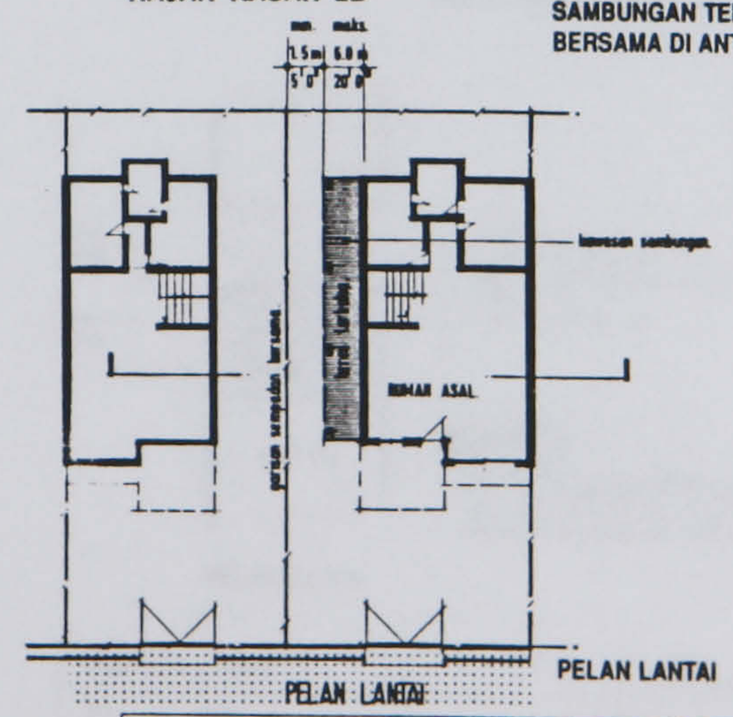
If the side of the building is set back from a common boundary between two buildings side extension can be permitted up to a clear distance of 1.5m measured from the common boundary subject to a maximum projection of 6.0m (20' 0").

RAJAH KASAR 2B

SAMBUNGAN TEPI RUMAH TERES YANG MEMPUNYAI SEMPADAN BERSAMA DI ANTARA DUA BANGUNAN

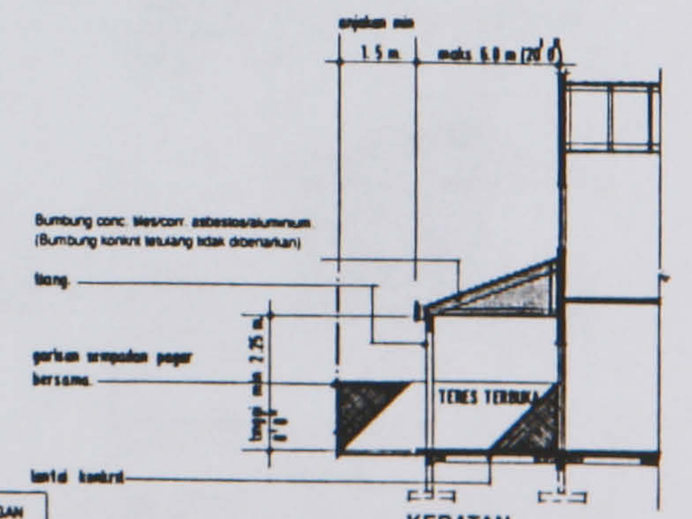
DILULUSKAN
Pelan yang telah diluluskan dalam Mesyuarat Jawatankuasa Pelan Bangunan Majlis Daerah Hulu Selangor bertarikh 17 Sept. 1993 Bil 07/93

b.p. Yang Dipertua
Majlis Daerah Hulu Selangor



PENTING

1. Rujuk keterangan di muka belakang.
2. Rajah kasar ini tidak boleh dipinda/diubah.
3. Rajah kasar asal ini bersama dengan 2 salinan photostat hendaklah dikemukakan untuk kelulusan MDHS.



PELAN LANTAI

KERATAN

ALAMAT DAN NAMA PEMILIK	TANDATANGAN
NO JALAN	
UNTUK KIP	
HAK CIPTA TERPELIHARA –	

SKETCH PLAN 3A

REAR EXTENSIONS FOR TERRACE HOUSES WHICH HAVE A DRAIN RESERVE/BLACKLANE OF LESS THAN 3.0M (10' 0")

Rear extension to ***ground floor*** *storey only up to a maximum distance of 4.5m (15' 0") measured on plan from the rear external walls of the original building to the outermost edge of the proposed extension are permitted provided they comply with all the limitations and the necessary setbacks from the rear boundaries.*

LIMITATIONS

(a) *Roof shall not be of reinforced concrete but shall be constructed of lightweight materials such as aluminium, asbestos, tiles.*

(b) *Separating walls between buildings shall be of minimum 112mm thick (each side) solid wall of incombustible materials and without any form of opening.*

(c) *Sufficient light and ventilation for the extension must be provided through openings, openabe windows or grilles having combined area of not less than 15% of the extended floor area.*

SETBACK FROM THE REAR BOUNDARY

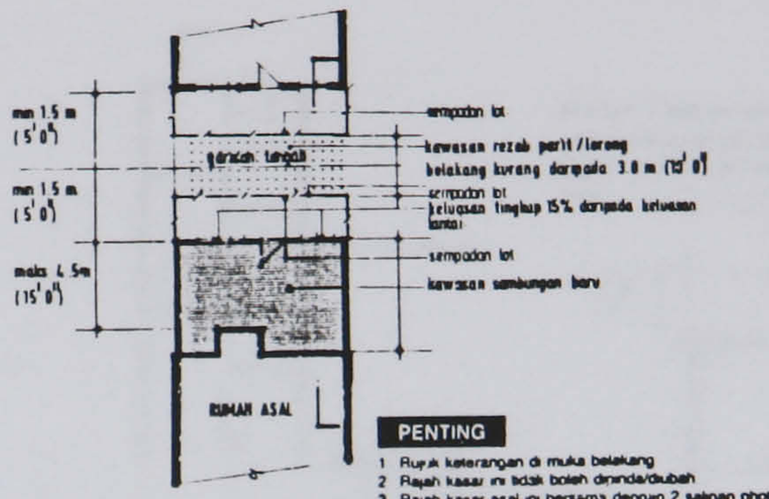
Where the rear of the building is set back from a drain/service reserve which is less than 3.0m in width, the rear extension can be permitted up to a clear distance of 1.5m measured from the centre line of the reserve subject to a maximum projection of 4.5m (15' 0").

DILULUSKAN

Pelan yang telah diluluskan dalam Mesyuarat Jawatankuasa Pelan Bangunan Majlis Daerah Hulu Selangor bertarikh: 17 Sept. 1993 Bil: 07/93

b.p. Yang Dipertua
Majlis Daerah Hulu Selangor

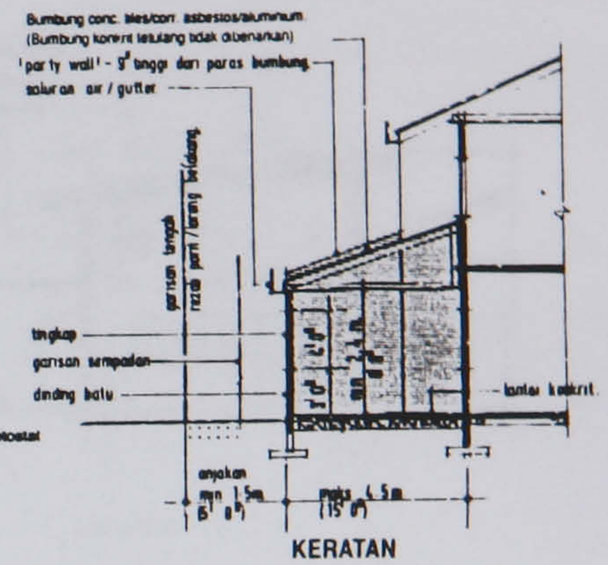
RAJAH KASAR 3A — **SAMBUNGAN BELAKANG–RUMAH TERES YANG MEMPUNYAI REZAB PARIT/LORONG BELAKANG KURANG DARIPADA 3.0 m (10' 0")**



PELAN LANTAI

PENTING

1 Rujuk keterangan di muka belakang
2 Rajah kasar ini tidak boleh dipinda/diubah
3 Rajah kasar asal ini bersama dengan 2 salinan photostat hendaklah dikemukakan untuk kelulusan MDHS.



KERATAN

ALAMAT DAN NAMA PEMILIK		TANDATANGAN
NO	JALAN	
UNTUK	K/P	
HAK CIPTA TERPELIHARA –		

NOTA

1 Semua permukaan dinding batu hendaklah di plester dan dicat
2 Blok mandi dan tandas tidak dibenarkan di dalam sambungan ini

SKETCH 3B

REAR EXTENSIONS FOR TERRACE HOUSES WHICH HAVE A DRAIN RESERVE/BACKLANE OF 3.0M (10' 0")

Rear extension to ground floor storey only up to a maximum distance of 4.5m (15' 0") measured on plan from the rear external walls of the original building to the outermost edge of the proposed extension are permitted provided they comply with all the limitations and the necessary setbacks from the rear boundaries.

LIMITATIONS

(a) *Roof shall not be of reinforced concrete but shall be constructed of lightweight materials such as aluminium, asbestos, tiles.*

(b) *Separating walls between buildings shall be of minimum 112mm thick (each side) solid wall of incomburstible materials and without any form of opening.*

(c) *Sufficient light and ventilation for the extension must be provided through opening, openabe windows or grilles having combined area of not less than 15% of the extended floor area.*

SETBACK FROM THE REAR BOUNDARY

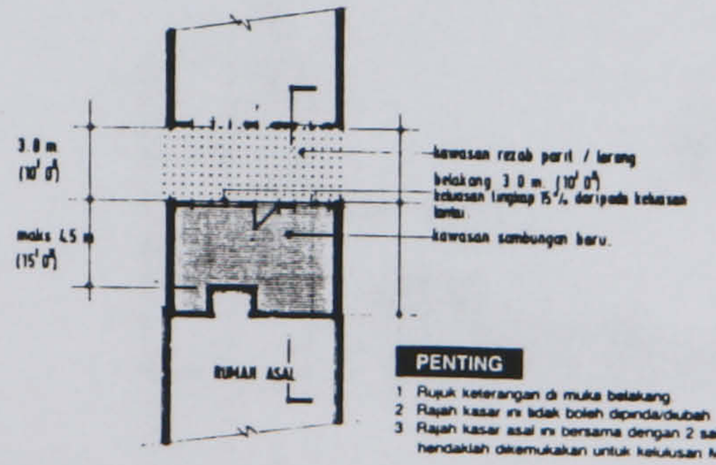
Where the rear of the building is set back from a drain/service reserve or backlane which 3.0m or more in width, the rear extension can be permitted up to the rear boundry of the building lot subject to a maximum projection of 4.5m (15' 0").

DILULUSKAN

Pelan yang telah diluluskan dalam Mesyuarat Jawatankuasa Pelan Bangunan Majlis Daerah Hulu Selangor bertarikh: 17 Sept. 1993 Bil: 07/93

b.p. Yang Dipertua
Majlis Daerah Hulu Selangor

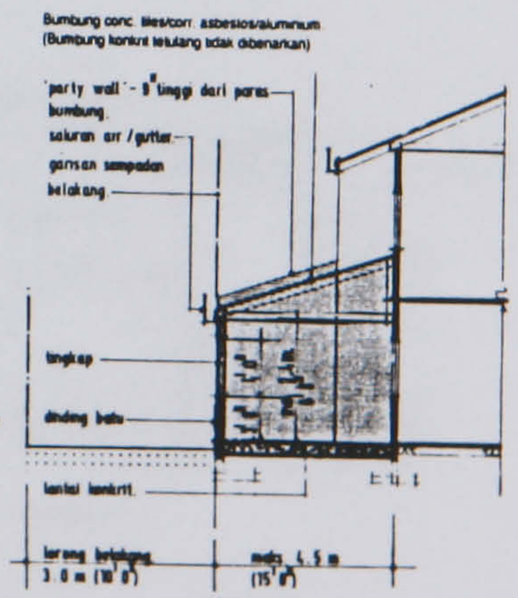
RAJAH KASAR 3B — **SAMBUNGAN BELAKANG-RUMAH TERES YANG MEMPUNYAI REZAB PARIT/LORONG BELAKANG 3.0 m. (10' 0")**



PELAN LANTAI

PENTING

1 Rujuk keterangan di muka belakang
2 Rajah kasar ini tidak boleh dipinda/diubah
3 Rajah kasar asal ini bersama dengan 2 salinan photostat hendaklah dikemukakan untuk kelulusan MDHS.



KERATAN

ALAMAT DAN NAMA PEMILIK		TANDATANGAN
NO	JALAN	
UNTUK	K/P	
HAK CIPTA TERPELIHARA –		

NOTA

1 Semua permukaan dinding batu hendaklah di plester dan di cat
2 Blok mandi dan tandas tidak dibenarkan di dalam sambungan ini

SKETCH PLAN 4A

COVERING OF AIR WELL, FOR TERRACE HOUSES - TYPE A

(a) Open space/airwell covering is permitted in single storey link/terrace houses only.

(b) Such covering must be in the form of a jackroof or a raised roof erected over the open space above the level of the existing roofline.

(c) The jackroof or raised roof shall be limited to a vertical height of 1.0m measured from the wall plate of the jackroor or raised roof to the junction where the existing roof meets the base of the jackroof or raised roof. The jackroof or raised roof shall be provided with openings, openable windows, grilles or the like to the full height and full width on at least one elevation of the jackroof or raised roof.

SKETCH PLAN 4B

COVERING OF AIR WELL FOR TERRACE HOUSES - TYPE B

(a) Open space/airwell covering is permitted in single storey link/terrace houses only.

(b) Such covering must be in the form of a jackroof or a raised roof erected over the open space above the level of the existing roofline.

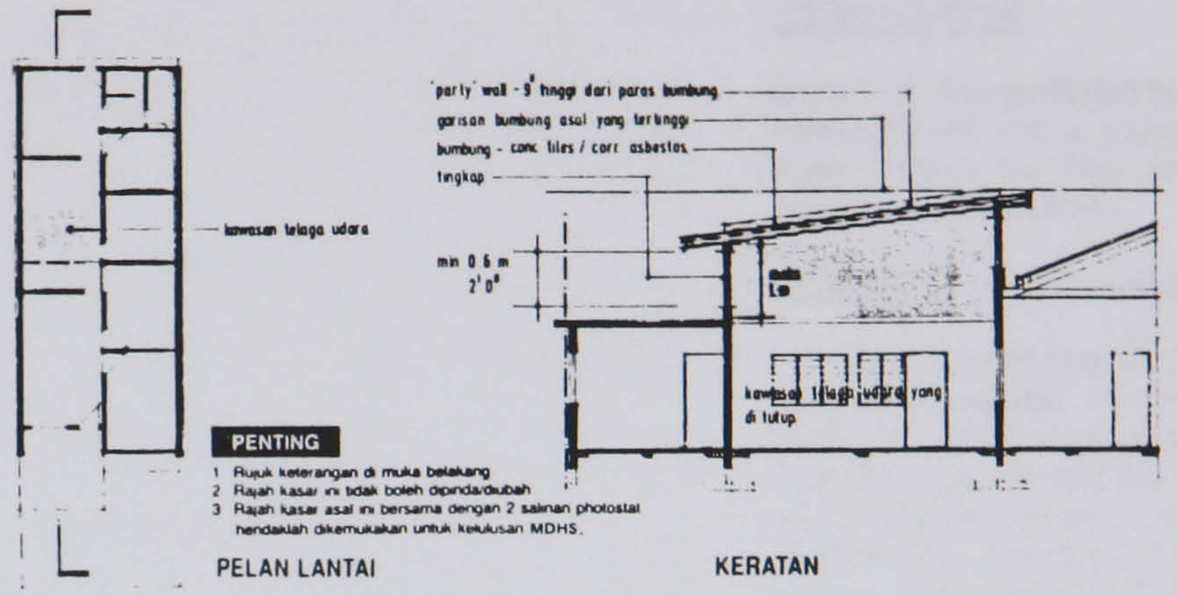
(c) The jackroof or raised roof shall be limited to a vertical height of 1.0m measured from the wall plate of the jackroof or raised roof to the junction where the existing roof meets the base of the jackroof or raised roof. The jackroof or raised roof shall be provided with openings, openable windows, grilles or the like to the full height and full width on at least one elevation of the jackroof or raised roof.

DILULUSKAN

Pelan yang telah diluluskan dalam Mesyuarat Jawatankuasa Pelan Bangunan Majlis Daerah Hulu Selangor bertarikh 17 Sept. 1993 Bil. 07/93

b.p. Yang Dipertua
Majlis Daerah Hulu Selangor

RAJAH KASAR 4A — **TUTUPAN KAWASAN TELAGA UDARA UNTUK RUMAH TERES JENIS A**



PENTING

1. Rujuk keterangan di muka belakang
2. Rajah kasar ini tidak boleh dipinda/diubah
3. Rajah kasar asal ini bersama dengan 2 salinan photostat hendaklah dikemukakan untuk kelulusan MDHS.

PELAN LANTAI — KERATAN

ALAMAT DAN NAMA PEMILIK	TANDATANGAN
NO JALAN	
UNTUK KP	
HAK CIPTA TERPELIHARA -	

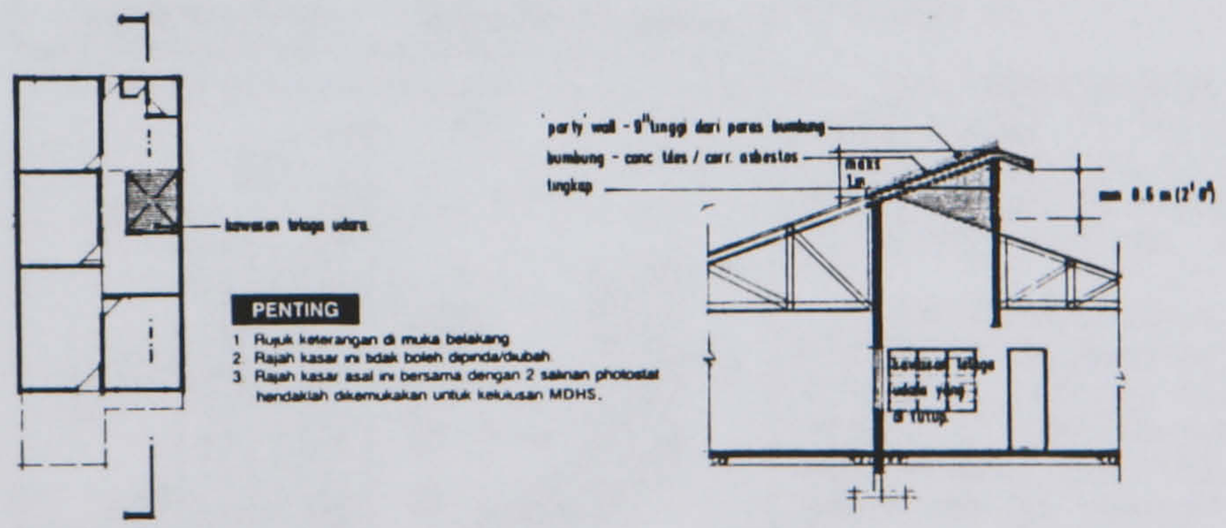
NOTA: Semua permukaan dinding baru hendaklah di plaster dan dicat

DILULUSKAN

Pelan yang telah diluluskan dalam Mesyuarat Jawatankuasa Pelan Bangunan Majlis Daerah Hulu Selangor bertarikh 17 Sept. 1993 Bil. 07/93

b.p. Yang Dipertua
Majlis Daerah Hulu Selangor

RAJAH KASAR 4B — **TUTUPAN KAWASAN TELAGA UDARA UNTUK RUMAH TERES JENIS B.**



PENTING

1. Rujuk keterangan di muka belakang
2. Rajah kasar ini tidak boleh dipinda/diubah
3. Rajah kasar asal ini bersama dengan 2 salinan photostat hendaklah dikemukakan untuk kelulusan MDHS.

PELAN LANTAI — KERATAN

ALAMAT DAN NAMA PEMILIK	TANDATANGAN
NO JALAN	
UNTUK KP	
HAK CIPTA TERPELIHARA -	

NOTA: Semua permukaan dinding baru hendaklah di plaster dan dicat

APPENDIX VI MODULAR DESIGN GUIDE

PART 1

1000 BASIC TERMINOLOGY & CONVENTIONS

A. TERMINOLOGY

1100 CO-ORDINATION

1101	Dimensional Co-ordination	The application of a range of related dimensions to the sizing of building components and assemblies and the buildings incorporating them.
1102	Modular Co-ordination	Dimensional co-ordination using the international basic module, multimodules, sub-modules and a modular reference system.

1200 GENERAL

1201	Dimension	A distance (e.g. between two points, lines or planes)
1202	Size	The magnitude of a dimension in terms of a defined unit.
1203	Preferred size	A size chosen in advance of others for specific purposes.
1204	Length	One of two horizontal dimensions, normally the greater.
1205	Width	One of two horizontal dimensions, normally the lesser.
1206	Height	The vertical dimension above a horizontal reference level.
1207	Depth	The vertical dimension below a horizontal reference level.
1208	Thickness	A dimension in any plane when its size is small compared to that of the other dimensions.

1300 MODULES

1301	Module	A convenient unit of size which is used as an increment or corfficient in dimensional co-ordination.

PART 2

2000 MODULAR CO-ORDINATION CONCEPTS

INTRODUCTION

Modular Co-ordination may be more easily understood as a range of concepts which constitute to the rationalisation of the building process.

CONCEPT I - Dimensional Coordination

A convention for the coordination of the dimensions of building conponents and building incorporating them for their design, manufacture and assembly by means of a three dimensional spatial reference system of points, lines and planes to which the position and size of a component, assembly or element may be related. The dimensional coordination system defines coordination spaces which are either filled up by material or building spaces.

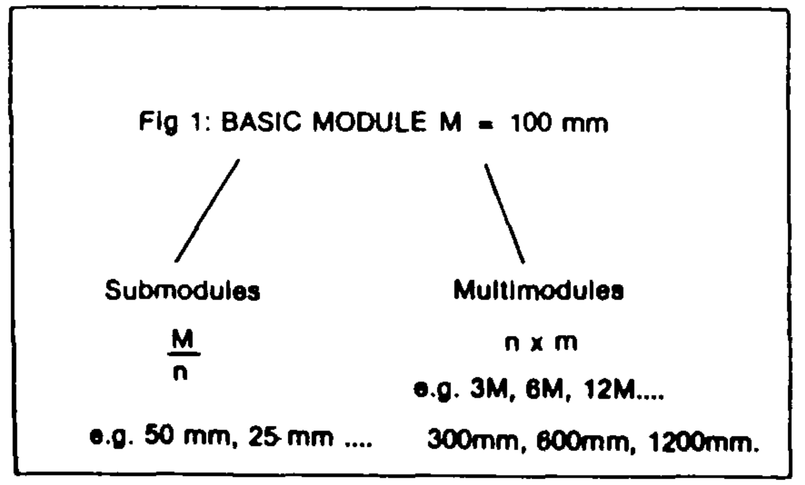
CONCEPT II - Modular Coordination

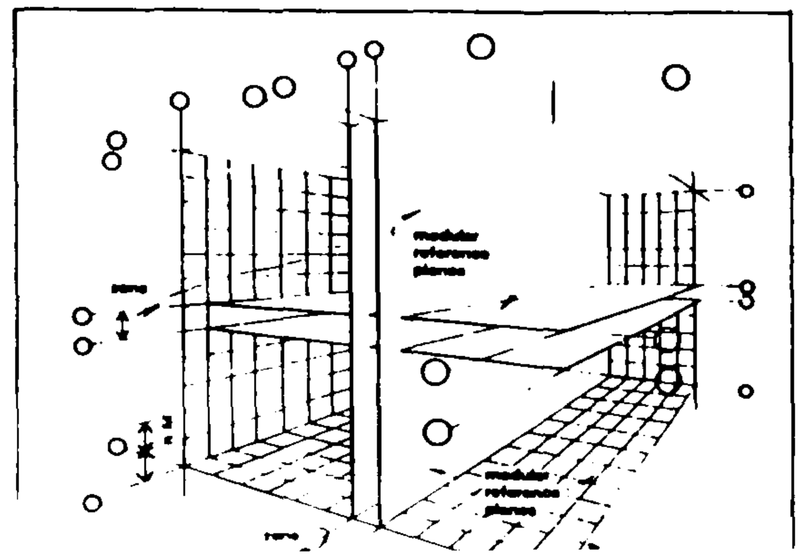
Dimensional coordination employing the basic module or some whole multiple thereof as basic dimensional unit and increments of it.

The basic module which is generally accepted at an international level is 100 mm which may be represented by the letter M. See Fig. 1

The basic module is considered to be large enough to effect some reduction in the range of component sizes and also small enough to provide a flexible unit of measure for the purpose of design.

The basic module is the smallest module to be used in a three dimensional modular reference system which coordinates within it the position and sizes of components, elements and installations which can be related by reference points, lines or planes. See Fig. 2





1302	Basic Module	The fundamental module used in modular co-ordination, the size of which is selected for general application to buildings and components The value of basic module has been chosen as 100 mm for maximum flexibility and convenience. The symbol for the basic module is M.
1303	Multimodule	A module whose size is an agreed multiple of M (100mm)
1304	sub-module	A module whose size is an agreed subdivision of M (100mm)
1305	Infra-module	A size smaller than the basic module.
1306	Modular	A descriptive term that indicates the use or application of the basic module M (100mm) or a multiple thereof.

1400 BUILDING REFERENCE SYSTEM

1401	Reference System	A system of points, lines and planes to which sizes and positions of a building component or assembly may be related.
1402	Reference point	A point of a reference system.
1403	Reference line	A line of a reference system.
1404	Reference plane	A plane of a reference system.
1405	Reference grid	A network of reference lines in one plane, generally rectangular.
1406	Grid line	A line a reference grid.
1407	Planning grid	A reference grid for the plan of a building.
1408	Structural grid	A planning grid for locating structure.
1409	Space grid	A three-dimensional network of reference lines, generally rectangular.
1410	Plane	A space between reference planes within or in relation to which a building component or group of building components is arranged. The space may be left unfilled.
1411	Neutral Zone	A zone which interrupts the regular increments of a reference system.

1412	Modular Reference System	A reference system in which the distance between consecutive parallel planes or lines is the international basic module or a multiple thereof.
1413	Modular Point	A point of a modular reference system.
1414	Modular Line	A line of a modular reference system.
1415	Modular Plane	A plane of a modular reference system.
1416	Modular Grid	A reference grid in which the distance between consecutive parallel lines is the international basic module or a multiple thereof.
1417	Modular Grid Line	A line in a modular grid.
1418	Modular Planning Grid	A planning grid in which the distance between consecutive parallel lines is the international basic module or a multiple thereof.
1419	Modular Structural Grid	A structural grid in which the distance between consecutive parallel lines is the international basic module or a multiple thereof.
1420	Modular Space Grid	A space grid in which the distance between consecutive parallel lines is the international basic module or a multiple thereof.
1421	Modular Zone	A zone between modular planes.
1422	Modular space	A space bounded by modular planes.
1423	Modular Axis	A line in a modular grid, which defines the position in plan of a main load-bearing element (for example walls, row of columns).
1424	Modular Dimension	A dimension between modular planes.
1425	Modular Size	The size of a modular dimension.
1426	Sequential reference system	An alternative reference system to locate the assembly of components in relation to other components according to construction assembly sequences on site.

1500 CONTROLLING REFERENCE SYSTEM

1501	Controlling Plane	A plane in a planning grid by reference in which the theoretical positions of structural elements are determined.